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Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves

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Shoes that Fit Bell Tracks.

According to revelations made before congress the shoe machinery trust which has been under investigation has a very effective scheme to control the shoe manufacturing industry of the United States. This combination will not sell its shoe-making machines, but compels manufacturers to lease the equipment at so high a rental that the cost for one year would be more than enough to purchase an English machine outright. The machinery trust has a strangle hold on the manufacturers, and they, in turn, take it out of the hide of the consumer.

How much this condition resembles that in the Bell telephone field! The parent Bell compels its subsidiary companies to buy apparatus from the Bell-controlled Western Electric. Prices, convenience, individual wishes cut no figure. The bosses down in New York issue the order and the Bell licensees must "come across." It is not so long ago that the American T. & T., like the shoe machinery trust, would only rent telephones to the Bell companies.

Did the shoe machinery combination learn that trick from the Bell? If so, why doesn't the government turn its searchlight on the Bell telephone trust? If Attorney General Wickersham intends, as he says, to investigate the lumber trust, the steel trust, the woolen trust, the electrical trust and many others, he should not overlook the Bell telephone monopoly. The chances are that before long the trusts now squirming on the rack will demand that similar attention be given the wire trust. Misery loves company, and fair play demands that Washington play no favorites in its crusade against illegal combinations.

Directory Advertising a Profitable By-Product.

The old, ultra-conservative idea that it is bad practice to sell advertising space in a telephone directory is passing out of existence. It has been driven out by the power of money—and no evil has come therefrom.

Many a small company is issuing three or four directories a year, with advertising, where formerly but two were sent out. And not only does the saving in directory expense show up very attractively on the books, but the subscribers receive better service. An up-to-date list pleases new subscribers, when they see their names in the book a short time after signing contracts; brings them messages which win early appreciation of the new service; saves many references to "Information"; and in fact has many advantages which are not appreciated until experienced.

Once it is in the treasury, a dollar from directory advertising will buy just as much as one from rentals or tolls—and may be fully as easy to get.

A. T. & T. 152 Bid on Boston Exchange This Week.

"No financing of any kind is under consideration at present, as all our current needs are amply provided for by existing funds." Thus Theodore N. Vail, president of the American (Bell) Telephone & Telegraph Co., in a recent interview. On Wednesday A. T. & T. stock was quoted on the Boston Stock Exchange at 150 bid. * * * What is the occasion for this sudden burst of speed, which has carried the stock up to a higher point than it has reached since 1903? * * * Is it possible that Mr. Vail is misinformed as to the financing of his company? Or is the market really being prepared for a flood of new Bell securities?—*Telephony, June 10, 1911.*

When asked today how the American Telephone & Telegraph Co. intended to finance the current year requirements for new construction account, President Theodore N. Vail said new stock would be issued, which would be offered to shareholders, either at par *or at a price to be determined by the board of directors.*

It is understood to have been estimated that new construction during the present fiscal year will total about $60,000,000, of which 50 to 75 per cent. will be provided out of surplus earnings of the various companies, leaving a balance of about $15,000,000 to $30,000,000 to be provided by new financing.—*Chicago Inter Ocean, June 14, 1911.*

The Public And the Telephone in Chicago.

Chicago telephone users and Chicago newspapers are for the first time in several years tangled in the fog of tele-

phone discussion. They find themselves confronted with the perplexing necessity of choosing between real and artificial information about the telephone, which has become a topic of live importance since the inauguration of the Independent automatic service. For the first time the citizens whose service is bad can reason out a more satisfactory course than to waste further time in fruitless condemnation of the Bell monopoly and its service.

This possibility doubtless occurred some time ago to the Chicago Telephone Company's officials. They have been spending large sums of money advertising that two telephones are a nuisance, while the telephone users wonder why they don't spend it to cut down the frequency of wrong number connections.

Enough people are now using the Automatic service to furnish something like a standard of comparison available to the city, and the discussion is growing interesting. In response to an advertisement quoting an alleged interview to the effect that competition had been unsatisfactory in Grand Rapids, a correspondent to the Chicago *Tribune* wrote as follows:

> Why is it that former councils granted permission to the Illinois Tunnel Co., to operate in competition with the Chicago Telephone Co., if it was not felt that the public cry against this monopoly was sufficient to cause their action? The council appropriated sufficient money to get the necessary data and apparently the aldermen at that time were sincere in their intentions to correct the conditions, and for Ald. Long to infer that they knew nothing is more than ridiculous.
>
> The Illinois Tunnel Co. has been granted permission to go ahead, and it should be required by law to do so, not the public made another laughing stock or cat's paw. Two companies operate in the city of Grand Rapids, near where the writer lived at one time, and their service was entirely satisfactory because each desired to show the best efforts to get the public approval, which is the same as any other avenue of commerce. I think it would be well for *The Tribune* or some other paper to take the question up, if there is not an honest reason why they should do otherwise, for to be compelled to submit to the conditions as they exist with no redress can only imply an absolute disregard of public demands by city officials.
>
> The Hagenah report is apparently based on facts, as the character of the man is without question a guarantee of its correctness, but that does not in any way eliminate the Illinois Tunnel Co., from the field.
>
> Jos. J. Eley.

The Chicago *Daily News* recently printed one of those stereotyped Bell editorials on the two-telephone nuisance. A reader came back with a demand for physical connection between the two systems. The public and the newspapers will eventually find that not all telephone facts are to be obtained from the Bell company. They are becoming "wise" to the trust, if not to the telephone situation. In fact they are showing some zeal in this direction, as is indicated by the following editorial from the Chicago *Tribune*:

> The report of the Chicago Telephone Co., to the bureau of internal revenue showing a shrinkage of net revenue from $2,191,665 in 1909 to $1,366,557 in 1910 may not be intended to establish an alibi for its profits but it is observable as a coincidence that the falling off is reported in a year when telephone rates are up for revision.
>
> In the opinion of the telephone management, no other utility corporation is the victim of such misunderstanding as is this one, and no doubt we have blundered again into a suggestion calculated to give the directors pain.

Mr. Sunny must enjoy his position on this question of depreciation. As a result of the city's investigation the company is not unlikely to suffer severely because Mr. Sunny once allowed insufficient provision for depreciation to be set out of the earnings. And now comes the United States Government inquiring whence comes this remarkable increase?

One of the joys of this telephone business is that one has to please everybody!

Activity in Texas.

The Dallas Independent plant continues to be a center of good news. This month, we understand, contracts for about $200,000 worth of heavy construction material have been signed, and shipments are already under way. We reported some time ago that initial installation for a big Independent system in that city had been financed, that Edmund Land was on the job as construction engineer, and that we should soon be hearing very interesting things from the metropolis of Texas.

Of course every one knows that work in Houston is being pushed forward rapidly under the direction of E. A. Ebersole, whose brother, F. E. Ebersole, was obliged to leave this work to handle the big installation in Chicago, on which he has made such a remarkable record, as shown in other columns of this week's paper.

The Attorney General of Texas is reported to be looking into the doings of the Bell trust. Texas has an anti-trust law, and an anti-trust spirit, both of proven efficiency. At least one trust has been up against them and before it got through knew that it had been fighting.

Taking everything into consideration it looks very much as if the Bell people would not be able to hamper Independent development in Texas during the next few years any more than in the past. The building of Dallas and Houston, with other work under way, will greatly add to the Independent toll business and put dollars in the pocket of every Independent investor of the state, while greatly adding to the value of the service furnished to Independent subscribers.

Vail Hits Keynote of Value of Competition.

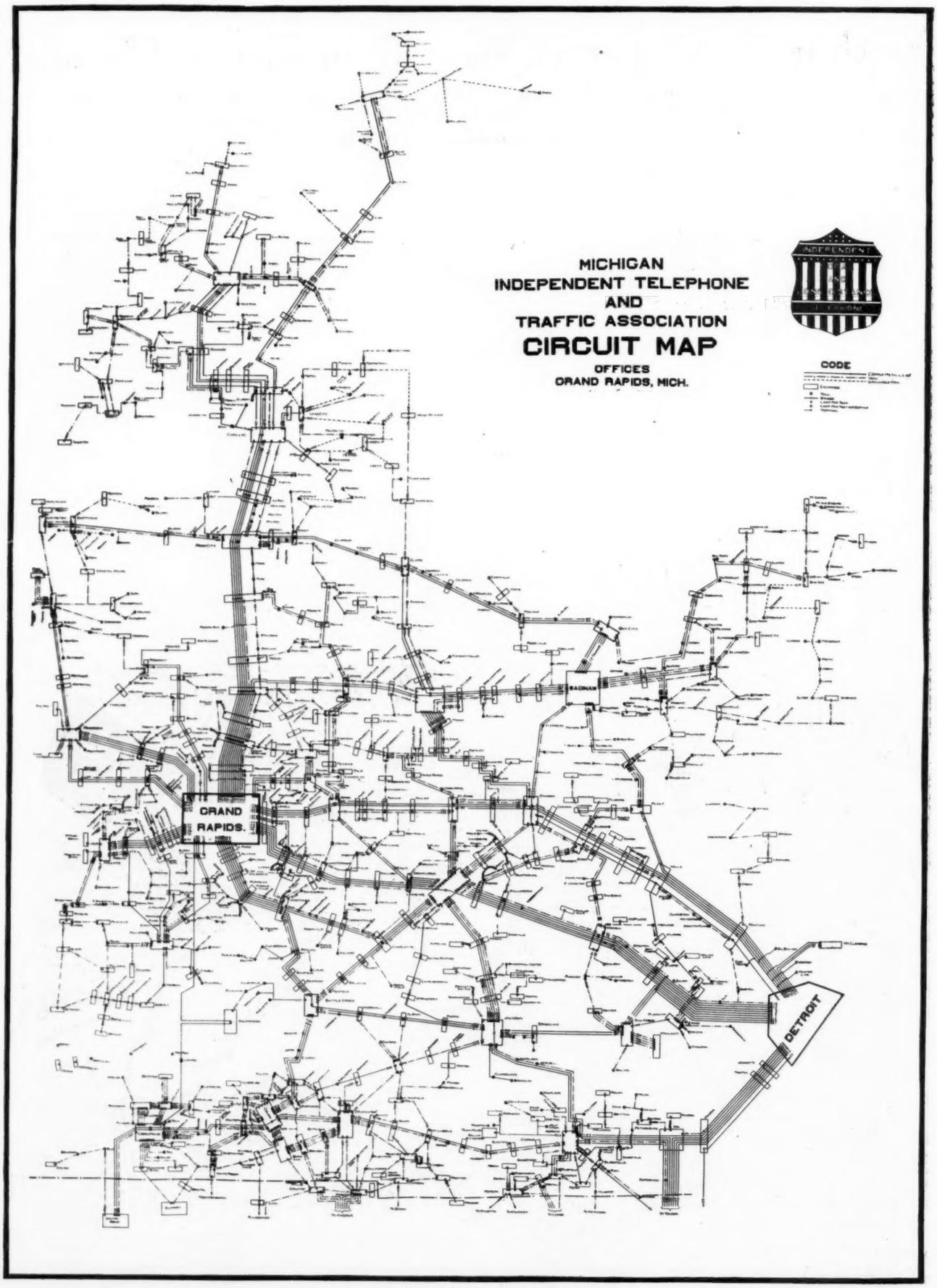
When asked recently regarding the statements made by the Postal Telegraph Co. in its official publication, which was quoted by TELEPHONY last week, Theodore N. Vail, president of the Bell system, said:

"I shall not be drawn into any wordy controversy with the Postal. If we are violating the law it is for the courts to say so. We feel that we are quite within the pale of the Sherman statute, but if we are not we should be only too glad to be set right. We are competing with the Postal, both by land and sea, and are determined to get the business by giving the best possible service."

There is at least one bit of sound doctrine from the head of the telephone trust that makes interesting reading. "We are determined to get the business by giving the best possible service." A suggestion—why not apply that to the telephone business instead of wasting the stockholders' money buying up competing plants, only to have new and stronger competition arise?

THE AUTOMATIC OPENS IN CHICAGO WITH 20,000 STATIONS
BELL TELEPHONE COMPANY ADVERTISEMENT
WE DONT SPEND OVER MUCH ON IMPROVEMENTS BUT WATCH OUR WARNING — BEWARE OF THE AUTOMATIC
!$!$!$!!!
BELL PRESS BUREAU
PA$TE
B.P.B. PUP
(SAMPLE) INDIANA EDITOR'S TESTIMONIAL — I HAVE TRIED THE AUTOMATIC SERVICE AND ALSO SOME BELL ADVERTISING. I PREFER THE LATTER.
BEWARE THE AUTOMATIC
BELL TELEPHONE CO.
CHARLES LEDERER

THE BILL POSTER



Circuit Map of Independent Lines in Michigan, Showing Main Leads—Soon to be Open to Chicago Independent Subscribers.

Franchise Requirements More Than Met in Chicago

Subway Telephone Construction Co., Installing Automatic Plant for Illinois Tunnel Co., Had Over 21,000 Telephones in Operation June 1, as Against 20,000 Demanded by City Grant—Interesting Details of Largest Single Installation Ever Undertaken

The franchise under which the Illinois Tunnel Co. has been installing its automatic telephone system in Chicago required that 20,000 stations be in operation by June 1, 1911. On that date the Subway Telephone Construction Co., which has the work in hand, reported over a thousand telephones installed above the franchise requirements.

To fully appreciate just what has been accomplished in the installation of an Independent plant in the second largest city in the country, it should be known that the system now comprises eight exchanges with an ultimate switchboard capacity of 35,500 subscribers' stations, and an installed capacity of 26,000. The present cable installed includes 34,400 subscribers' pairs.

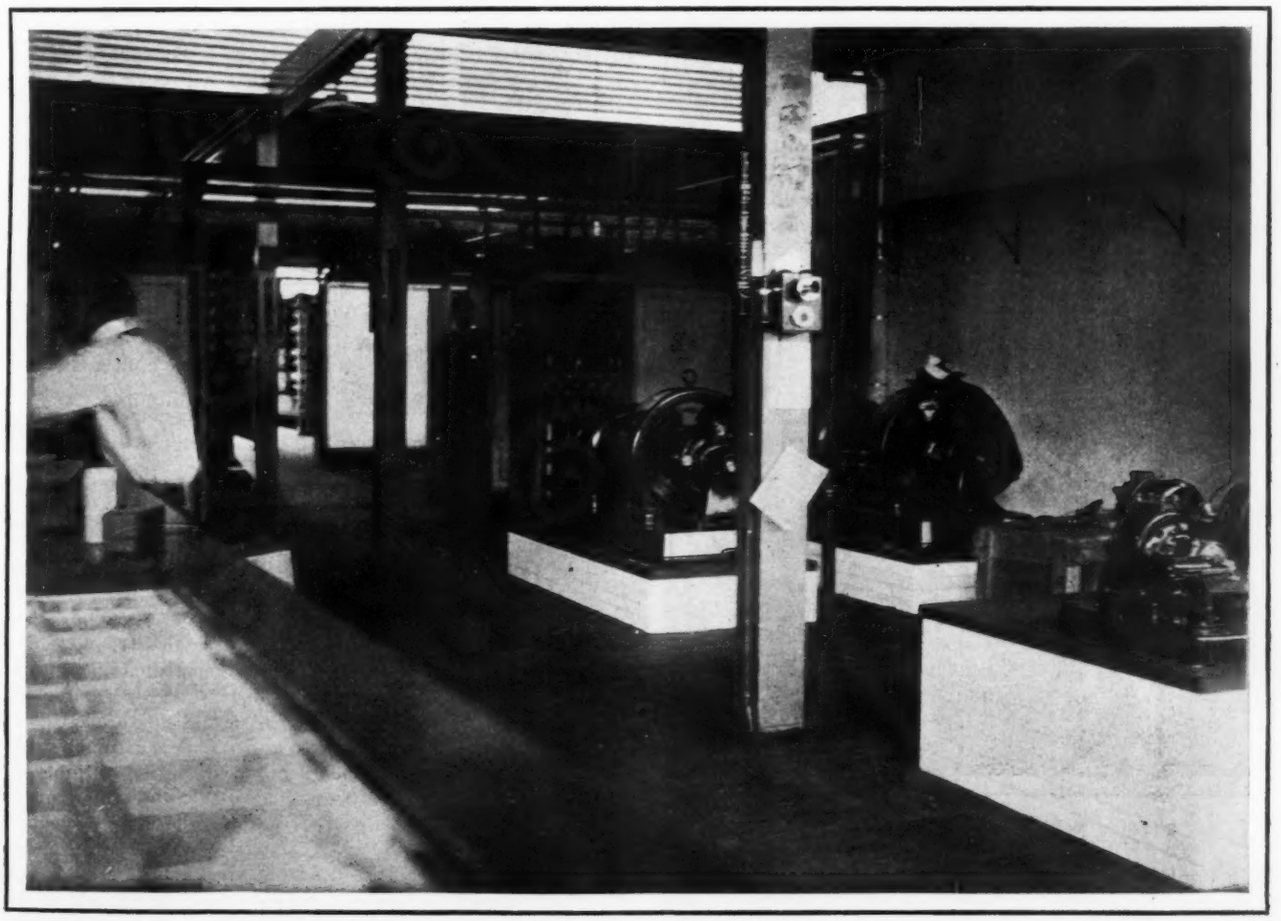
The conduit construction in connection with the tunnel, as installed at the present time, gives these exchanges a capacity of 71,000 subscribers' pairs of wires, which, figured on an 80 per cent. basis of efficiency, would provide for 89,800 subscribers in the district covered. Should additional exchange facilities be provided in that district, the existing conduit system would care for a total of 135,000 telephones without making any material changes.

In the district now served 288 buildings have been cabled, over 4,400 poles set, about 24 miles of trench completed, and more than 150 duct miles of conduit laid. Over 1,100,000 feet of cable have been installed, more than half of which is No. 22 B. & S. gauge, the balance being No. 19 B. & S. gauge. The installation also includes 500,000 feet of messenger wire, over a million and a half feet of duplex drop wire and two and a half million feet of interior wire.

As stated last week, the council committee on gas, oil and electric light has instructed the city electrician to verify the figures reported by the company to show its compliance with the franchise requirements. This officially done, the Illinois Tunnel Co. may be said to be fairly launched on what is undoubtedly the largest and most important single telephone installation ever undertaken in the history of the industry.

As showing the magnitude of the accomplishment, it is interesting to note that most of the work has been done since the middle of last February, at which time F. E. Ebersole came from Houston, Texas, to assume the direction of affairs. Of the 21,000 telephones installed, more than half were placed after Mr. Ebersole's advent. Of the 25-pair and 50-pair cable, which constituted the larger portion of that used in the plant, approximately 70 per cent. was installed since February, as well as 78 per cent. of the 100-pair cable and 41 per cent. of the 400-pair. More than one-half of the poles were set during that period.

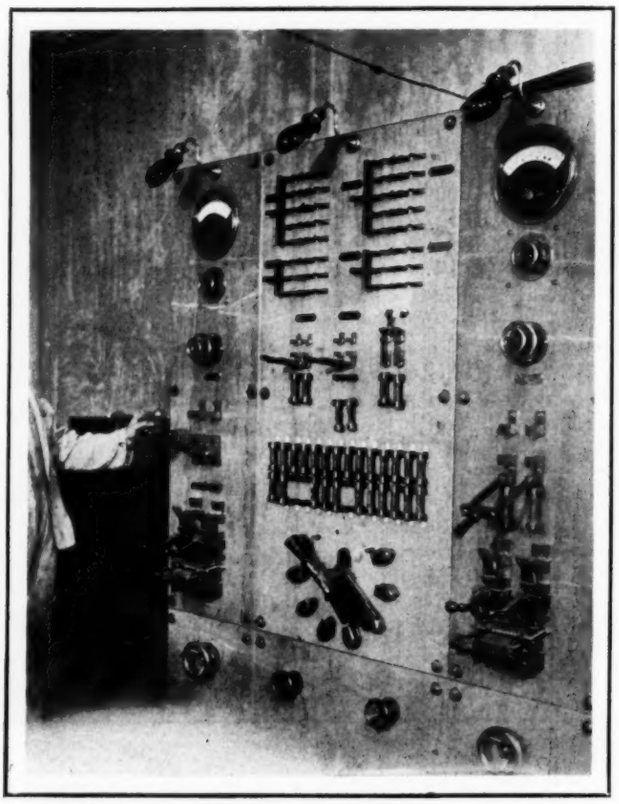
Mr. Ebersole, as TELEPHONY has shown, is a record breaker in the matter of telephone construction, and his



Uniform Distribution of Light Noteworthy Feature of New South Side Exchange, Illinois Tunnel Co.

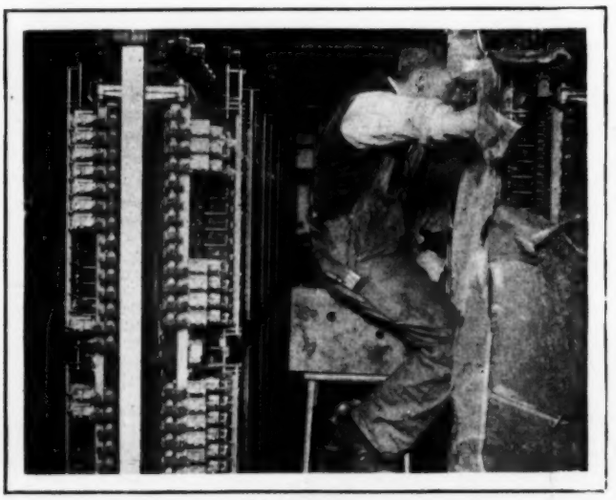
work here in avoiding the complications which might have ensued from failure to live up to the franchise demands is well in line with his past performances.

There will be no cessation of the work now that these



Power Board, Chronicle Building Exchange.

requirements have been met. On the contrary, construction will be pushed forward even more rapidly than before, if such a thing be possible. The Subway Telephone Construction Co. has in hand, in addition to those covering the telephones installed, more than 20,000 contracts for serv-

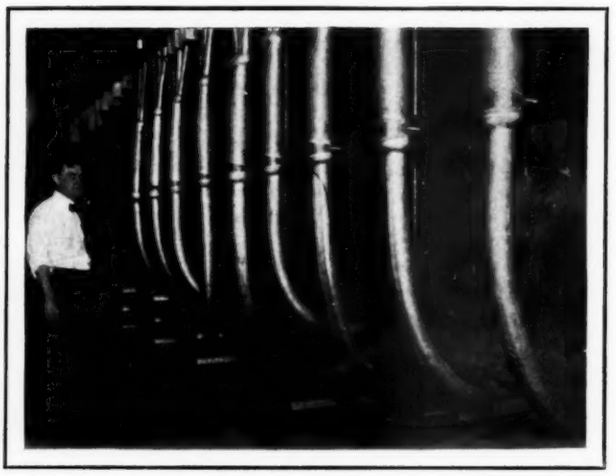


Showing Working Space Between Selectors.

ice. Connections will be established for these subscribers as fast as the system can be extended to reach them. The large soliciting force of the company continues actively engaged in signing up new orders, with a fair prospect of holding its lead over the installers for some time.

As shown weekly by the news columns of this paper, the field outside Chicago almost immediately felt the spur consequent upon the assured connection with that city and orders for material and equipment aggregating hundreds of thousands of dollars have already been placed.

The Inter-State Independent, of Aurora, alone has just



Economical Cable Entrance, South Exchange.

completed preparations for the expenditure of $175,000 for this purpose. That company is now enlarging the capacity of its long distance lines to the city limits, where it will connect with the automatic plant, besides bettering and amplifying its lines throughout its entire system. And this is but one instance of the activity to be found at this time in the huge territory affected by the opening of Chicago to the Independents.

Voting Pool of Louisville Home to Be Dissolved—Bankers Placed on Directorate of Company.

The voting pool of the Louisville Home (Independent) Telephone Co. is to be dissolved, and a statement to stockholders in this connection has just been sent out. The pool was formed several years ago for the purpose of protecting the company against possible change of control, but it is stated that those who are now in charge of the affairs of the company own enough stock to insure the continuance of their administration. For this reason the pool is no longer necessary, and in the interest of convenience and saving time and labor, it is to be dissolved. A Louisville newspaper printed a story that the dissolution of the pool meant a step in the direction of the absorption of the company by Bell interests, but this was promptly denied by officers.

The company has placed on its directorate two of the leading bankers of the city, Sam P. Jones, president of the Commercial Bank & Trust Co., and James B. Brown, vice-president of the National Bank of Commerce. They succeeded, respectively, P. S. Pogue, general manager, and S. M. Heller, assistant treasurer, who continue in those positions. The election of the bankers to the directorate, it was stated, was in the effort of the company to establish its local connections as strongly as possible and to keep in touch with the attitude of Louisville people toward the institution.

The directors gave out a statement following their meeting last Saturday at which the new members were elected denying that the company is controlled by the Central Home, as has been reported heretofore. It was stated that the Central owns only about 5,000 shares of the stock, while most of the bonds of the company are held by individual Louisville investors.

New Company to be Formed at Salt Lake Immediately, Postal Telegraph Co. Co-operating.

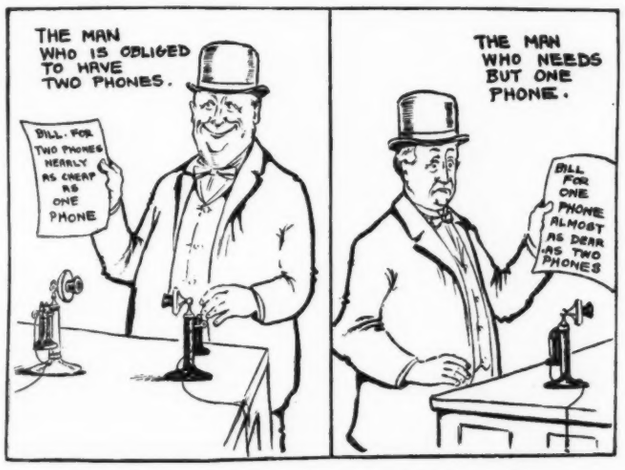
With the open taking over of the Utah Independent Telephone Co., at Salt Lake City, by the Rocky Mountain Bell Telephone Co., and the subsequent announcement by H. Vance Lane, president of the Bell company, that rates would be raised, interest has strengthened in the proposed new company which will shortly be established by the Hammer syndicate.

A new element entered into the proposition when it became known that the Postal Telegraph Co. would co-operate with the proposed automatic system and would connect its newly-constructed long distance lines to San Francisco with the new plant. Besides this, lines will be built to connect with the Montana Independent Telephone Co., at Butte, a part of the extensive system of the Interstate Consolidated Telephone Co., of Spokane, Wash.

The work of completing the formation of the new company at Salt Lake will now be actively pushed and it is expected that an application for a franchise will shortly be made to the City Council.

The sale, because of its farcical nature, is regarded with amusement by the public. The *Herald-Republican* fairly expressed the general opinion in a recent editorial, in part, as follows:

> The amusing feature of the whole performance is the manner in which the Utah Independent Telephone Co. was sold to the trust. The terms of sale were that the


THE MAN WHO IS OBLIGED TO HAVE TWO PHONES.
BILL FOR TWO PHONES NEARLY AS CHEAP AS ONE PHONE
THE MAN WHO NEEDS BUT ONE PHONE.
BILL FOR ONE PHONE ALMOST AS DEAR AS TWO PHONES

How Salt Lake Looks on the Telephone Juggle.

plant could be sold either with or without the secondary franchise. The secondary franchise in plain words means the right granted the Independent telephone company to do business in Salt Lake, said right being granted by the City Council of Salt Lake. Just what use anybody could have had for the plant without this franchise it is difficult to see. The only concern that could use the plant without the Salt Lake franchise is the telephone trust, and it must have been well known to those who framed these terms of sale that the trust would buy the plant, no matter what the cost, inasmuch as the local agents of the trust figure on getting their money back in a reasonable time from increased rates. It seems to have been a game of false pretenses from the beginning.

As to the astute agent who represented the eastern bondholders, that is the concern which holds the Independent company bonds, his pretense at bidding was really the most amusing vaudeville stunt ever performed on an otherwise solemn occasion. Inasmuch as the concern which held the bonds is closely affiliated with the American Telephone & Telegraph Co., which owns the Rocky Mountain Bell, it is plain that neither the clever Mr. Wakeley nor the businesslike Mr. Lane would damage each other to any great extent.

The *Tribune* cartoonist condensed the popular wonder as to the proposed rate raise into the drawing here reproduced, with the caption: "The pending question is: What will be the new rate?" The *Herald-Republican* declares that "if residence rates are raised a special session of the Utah Legislature ought to be called by the governor, and a rate increase prevented by law." "The power to do this," the paper continues, "is lodged in the Legislature, fully conferred upon it by the state constitution."

Kansas Public Service Commission to Test Compulsory Physical Connection Clause in Statute.

John Marshall, attorney for the Public Utilities Commission, has drawn up a test case of physical connection of telephones under the new public utility law, which the Girard Mutual Telephone Co. is expected to file with the commission shortly.

The Girard company wants physical connection with the Bell and Independent lines running out of Girard, so that the Mutual company subscribers can get long distance service out of Girard over both lines.

"My idea," said Mr. Marshall, "is that by this proceeding relief can be given mutual companies when they ask it. We want to thresh out the problem and here is an opportunity to do it. The Mutual company of Girard wants to pay for the use of the Bell and Independent lines for long distance service, and I believe there is an obligation upon the Bell company and the Independent company to give service to anyone who will pay for it—a common law obligation. That is just like a railroad company which owes an obligation to anyone who wants to ride on its trains who will pay for the service.

"This will be one of the grounds upon which I will proceed, and then here is the other from the new public utilities law:

"Every common carrier and public utility governed by the provisions of this act shall be required to furnish reasonably efficient and sufficient service, joint service and facilities for the use of any and all products or services rendered, furnished, supplied or produced by such public utility or common carrier and to establish just and reasonable rates, joint rates, fares, tolls, charges and exactions and to make just and reasonable rules, classifications and regulations; and every unjust and unreasonable discriminatory or unduly preferential rule or regulation, classification, rate, joint rate, fare, toll or charge demanded, exacted or received is prohibited and hereby declared to be unlawful and void and the public utilities commission shall have the power, after notice and hearing of the interested parties, to require any common carrier and all public utilities governed by the provisions of this act to establish and maintain just and reasonable joint rates wherever the same are reasonably necessary to be put in, in order to maintain reasonably sufficient and efficient service from such public utilities and common carriers."

An Enterprising Mississippi Company.

The J. Q. Byrd Telephone Co., which does business in Franklin county, Mississippi, has filed its quarterly report, which possesses a rather unique feature, in that it shows one man, J. Q. Byrd, to be "president, director, owner and lineman." It operates sixty-four miles of wire in Franklin county and earned during the quarter $189, with an expense account of $175, leaving a balance of $14 for division among the directorate.

Connecticut Senate Passes Utilities Bill.

The Senate has passed a public utilities commission bill by a vote of 20 to 9. It is believed the House will also pass the measure. The bill provides for a commission of three members, at salaries of $5,000 each, to have supervision over transportation, telephone and telegraph lines and express, gas, electric lighting and water companies in the state.

Illinois Congressman Proposes to Introduce a Bill Creating a Substitute for Sherman Act.

Representative Sabath, of Illinois, has prepared a bill which he will shortly introduce at Washington, proposing a substitute for the Sherman anti-trust law and providing stringent regulations for the supervision of corporations.

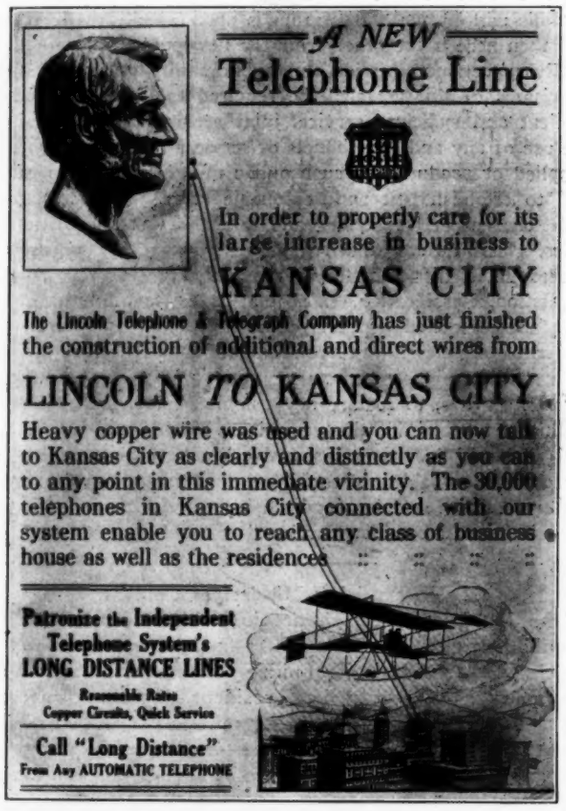
The proposed law would eliminate all questions of the "reasonableness" of a combination, by providing that every contract between corporations, made for the purpose of carrying on a combination in restraint of trade, shall be at once declared illegal, and an offending corporation, found guilty, should be fined not less than $25,000 and not more than $250,000.

Officers or agents of corporations committing or permitting the execution of such contracts would be liable to imprisonment for not less than one year and not more than eight years, and in addition would be forever disqualified from acting as officials of banking associations or any corporations engaged in interstate or foreign commerce and would be barred from holding public office.

Instead of leaving the prosecution of offending corporations to the Attorney General of the United States, the law would make it mandatory on district attorneys to start action when offenses were brought to their notice.

Lincoln Independent Employs Striking Mailing Card to Announce New Lines to Kansas City.

This is how the Lincoln (Independent) Telephone & Telegraph Co., of Lincoln, Neb., is giving notice to its subscribers


A NEW
Telephone Line
In order to properly care for its large increase in business to
KANSAS CITY
The Lincoln Telephone & Telegraph Company has just finished the construction of additional and direct wires from
LINCOLN TO KANSAS CITY
Heavy copper wire was used and you can now talk to Kansas City as clearly and distinctly as you can to any point in this immediate vicinity. The 30,000 telephones in Kansas City connected with our system enable you to reach any class of business house as well as the residences
Patronize the Independent Telephone System's
LONG DISTANCE LINES
Reasonable Rates
Copper Circuits, Quick Service
Call "Long Distance"
From Any AUTOMATIC TELEPHONE

Announcement of New Lincoln-Kansas City Lines.

of additional direct lines to Kansas City. It is a private mailing card, nine inches deep by six and a quarter wide, printed in red and blue. One wonders at first glance why the aeroplane is so prominent at the Kansas City end of the line, but shortly concludes that it must be the Bell company which is "up in the air." The announcement is very effectively gotten up—it is good advertising.

Treasury Department Questions Bell's Big Increase in Depreciation Charges.

The United States Treasury Department was aroused this week to the point of determining upon an investigation of the Chicago (Bell) Telephone Co. for the purpose of ascertaining whether the company has attempted to conceal the true amount of its profits by juggling items of accounting in its scheme of bookkeeping.

Officials of the bureau of internal revenue who are engaged in spreading the federal assessment of corporations want an explanation of an unusual item which appears in the telephone company's affidavit of receipts and expenditures on which the tax is computed.

This item is the depreciation charge for 1910, which appears in the schedule to be more than double the company's depreciation allowance in 1909.

This increase of the depreciation account results in reducing the apparent net income about $800,000, although the company did around $1,300,000 more business in 1910 than in 1909. The result to the government is about $8,000 less in taxes from the Chicago Telephone Co. in the event the increased depreciation item is allowed to stand.

The company reported a net income of $2,191,665 for 1909. The falling off of its net profit for 1910, therefore, according to its own figures, was $825,108. For 1909 it paid a tax of $21,866, or $8,251 more than it proposed to pay this year.

The sworn statement filed by the company, covering its operations for 1910, was as follows:

Capital stock paid up	$27,000,000
Bonded and other indebtedness	5,000,000
Gross income	11,276,604
Deductions—	
Expense of maintenance and operation	6,604,871
Losses not covered by insurance	43,895
Depreciation	2,347,068
Interest on debt	254,211
Taxes	660,000
Total deductions	9,910,046
Net income	1,366,557
Exemption under the law	5,000
Amount taxed at 1 per cent	1,361,557

In the statement of its business for 1909 the company included $1,050,197 for depreciation. The statement this year shows an increase of $1,296,871 in the depreciation item. Commissioner Cabell at once ordered an investigation.

Bernard E. Sunny, president of the company, stated that the change in the depreciation account was the result of suggestions made by W. J. Hagenah, the city's expert, who recently examined the books of the company to determine a proper schedule of rates. He professed himself willing to have the government investigate. Later it was stated that the officers of the company would probably be summoned to Washington to explain the matter.

Physical Connection Ordered in Oklahoma.

The Oklahoma Corporation Commission has issued an order in the case of J. B. Dinwiddie vs. Braman Mutual Telephone Co. and Pioneer Telephone Co. requiring the two companies to make physical connections, and that Dinwiddie be given the same rate as any other subscriber.

Chicago Telephone to Issue $5,000,000 Bonds.

The Chicago (Bell) Telephone Co. next fall will issue about $5,000,000 more first mortgage 5 per cent. bonds, this being the company's first financing since the present outstanding $5,000,000 bonds were marketed early in 1909. The mortgage provides that the balance of the authorized $5,000,000 may be issued at a rate not exceeding $5,000,000 annually and never above 50 per cent. of total assets.

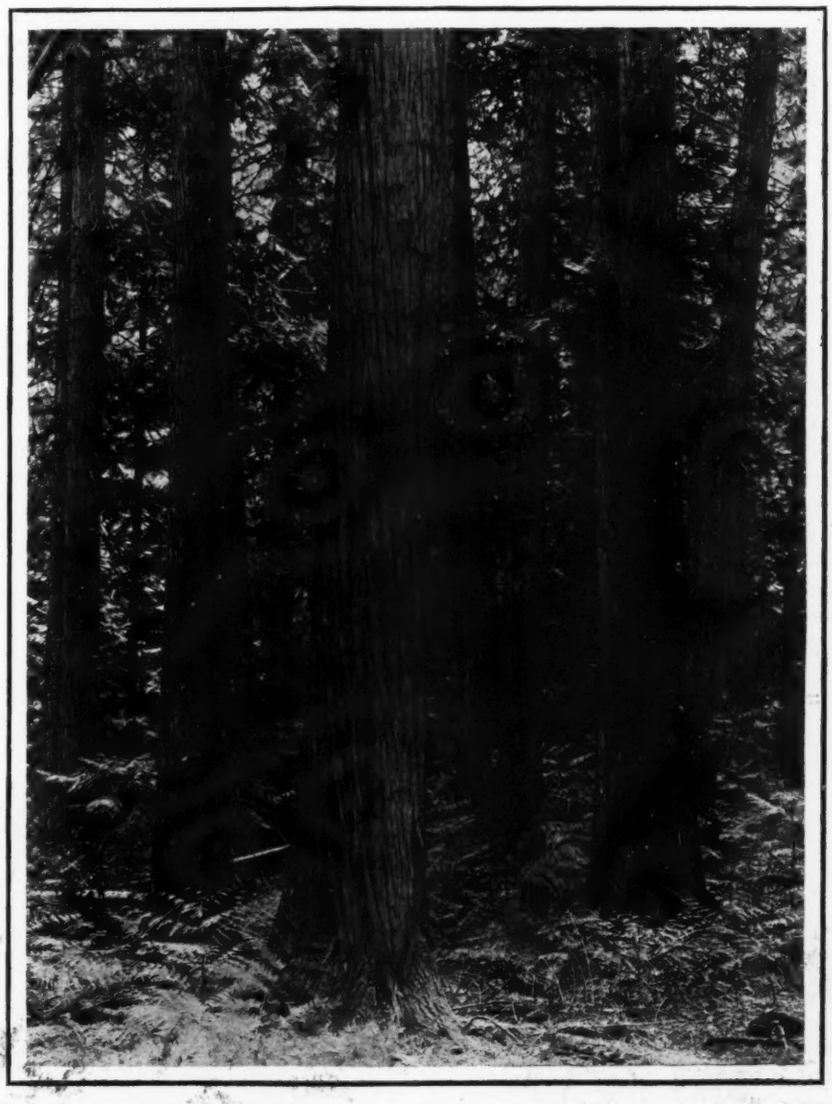
Producing Telephone Poles in the Rocky Mountains

How the Big Pole Companies Cut, Finish and Bring Their Product to Market—An Account by One Who Knows the Business from First to Last, Bringing Out the Human Interest Element in An Exceedingly Interesting Industry—Pole Man Half-Brother to Electrical Man

By E. A. Lindsley

The pole man holds a unique position among business men. At first he is a lumberman. This is during the time he is producing the stock, that is, providing he is a real producer of poles—not a scalper. As a salesman later he becomes identified wholly with the electrical profession. As a lumberman he is alive to the values of timber, gets out with his woodsman's togs and estimates his timber, and selects the most accessible, easiest and cheapest to log.

After purchasing the logging season begins. The pole makers are put to work. They are assigned to parcels of timber called strips, with instructions to cut clean as they go and pile their brush and tops for later burning. The woods foreman sees to the proper fulfillment of their contract and they are paid by the foot for felling, peeling, and trimming the poles. Each pole is required to be made strictly according to standard specifications. Each day it is the duty of the pole inspector to go the rounds and check up each pole maker and give him credit for his day's work and inspect and stamp each pole. If any pole is found to be poorly made the pole is not credited to the maker and he is instructed to reduce the pole to a size that will pass inspection. Or it may be made into piling, or cut up into shingle bolts or posts, as the case may be, depending upon the defect encountered. A maker with poor judgment is an expensive man in valuable timber and is soon "fired."



Where the Cedar Poles Are Cut in Northeastern Washington.

Defects in cedar are numerous. The following are some of the most common: Rot in the butt of the pole or in the top is a serious defect if large enough to impair the strength of the pole after it is set in the ground. This should be remedied in the woods by cutting back five or ten feet. However, butt rot is not considered by pole experts among the most serious defects, from the fact that rot does not spread after the tree is cut. If it does not extend beyond the 6-foot limit or ground line, it should not be considered too seriously by consumers because poles are becoming scarcer every year and more valuable, and the feature of conservation is entering very largely into the subject. "Future supply" is the appalling nightmare of the large consumers, therefore, the producer is obliged to stand the brunt, for he gives his pole makers the benefit of the doubt and sometimes gives the makers too much latitude in order to conserve his timber and finally is the loser.

Then there are "cat faces." These are caused by bruises made by a neighboring tree falling and striking the growing cedar. Or perhaps a sister tree is struck a blow and in falling leans against the cedar and rubs back and forth in one spot every time a breath of wind strikes it. This is the sound that sends shivers through young nimrods experiencing their first night in a tent in the woods. This cat face is a bad defect if the body wood starts to rot before it is cut. If allowed to stand, nature heals this in time by growing new bark over it. The inspector takes his jack knife and probes it and if it is hard and sound and not too large it will not impair the strength of the pole.

Wind twists, largely found in Eastern cedar, but seldom in Western cedar, if too exaggerated, are also defects.

Dead or dry streaks caused by one tree scarfing another in falling should stand the same test as "cat faces," and should not be wider than from 4 to 8 inches, depending upon the size of the pole.

Large knots caused by a branch shooting out on the side, if cut smoothly (and if, after being trimmed, the pole is found to be perfectly sound), are not serious defects, although they may be a little unsightly. On these points also the producer must give and take with the pole maker.

Double crooks are perhaps the worst defect we have to contend with. The pole maker is not always a saint and will scheme and figure and use up more time in trying to disguise or cover up a defect than it would take him to remedy the defect or make another pole in the meantime. Double crooks are the bane of his existence. It is curious at times how a pole will fall under a brush heap, peeled. Cat faces are always on the under side of the pole.

The rough old pole peeler is not up on technical terms and don't understand what the axis or the planes of a pole are. All he has is his keen eye, his ax and his saw, his wedge and his bottle of "Standard Oil" to lubricate his saw when it gets gummy, and his ten-foot pole with a notch in the middle. Twice and a half is a twenty-five, three times for a thirty, etc. He makes good wages, however, but he works hard for it. Some days he clears, on good timber, as high as six dollars. Three dollars is about the minimum. The timber is pretty poor if he can't make three dollars, and he "jumps his job" without any ceremony.

After the pole maker come the swampers, usually two or three men and a horse. They clean out a trail for the horse to pull out the poles to the main logging road. It is not always easy. A pole gets wedged or bound,—then look out for fire. Oh, the air gets blue and the horses tremble! These skidding roads are the veins all through the woods. The poles are dragged in to the big skids or decks on the main road to be loaded on sleighs or wagons and the poles are now nearly out of the woods. Out in the West the building of the logging road is sometimes an engineering feat. To get the poles down to the yard at the track or dumped into a stream it is at times necessary to build from two to six miles of mountain road, very rough and rugged. Hundreds of boxes of dynamite, a couple of hundred men with picks and shovels grading down a side hill to get a level grade, or following down a creek bottom too soft to hold up the horses. This has got to be corduroyed. Axes get busy splitting trees for corduroying. A bridge is thrown across, a thousand stumps blasted out of the road ahead of the graders to get a level, smooth grade. Up against a rock pile. The rock drills are brought into action and then dynamite, etc.

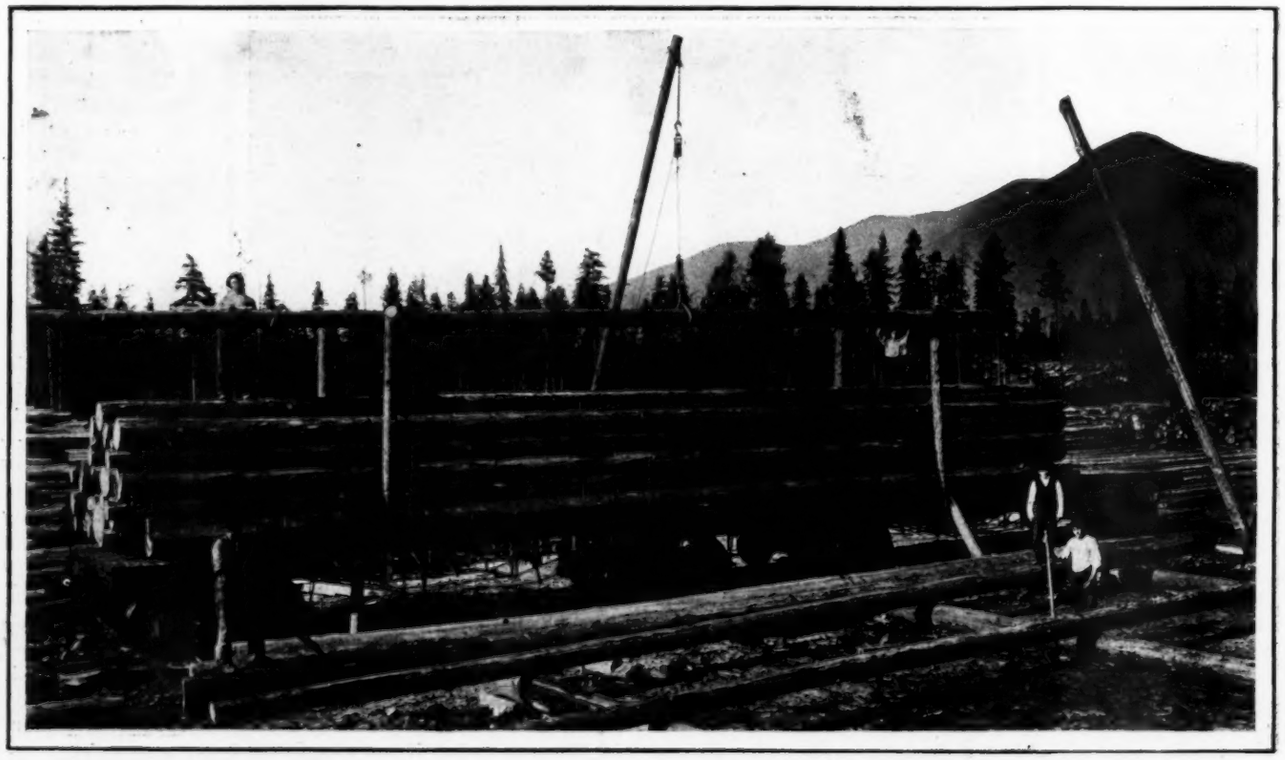
The road completed, the wagons or sleighs are brought into action. This is the most exciting and skilful part of the job. It is thrilling to see a huge sleigh come down the logging road loaded up with a carload of poles, gliding along as still as a mouse, four big logging horses bending into their collars with all the power of steam engines. Their trips must be made on schedule. To do this promptly, early rising, good care of their horses, and the cooperation of the loaders in the woods are essential. All work together like clockwork.

All devolves upon the camp foreman and his lieutenants. He is a bundle of nerves and energy. He has a rough class of men. Good when they are good and thoroughly appreciated, but "ornery" is no name when they get cranky and things don't just suit them.

Now the poles are down out of the woods and in the yards at the track and the loading begins. The inspectors go onto the job again in a new role, shipping. Cars must be loaded just so or the conductor won't pull them out for fear the car inspector will call him down. The fight for cars begins in busy seasons.

Now the pole man isn't a logger. He is half-brother to the electrician, or is an electrical supply man with a specialty.

Mr. Lindsley, the author of this article, is vice-president of the Lindsley Brothers Co., with offices in Chicago, Washington and British Columbia.



Loading Poles at British Columbia Yards for Shipment to the States.

Equitable Methods of Determining Plant Value

Proposition Advocated in Case of Electric Trolley Line in Rate Adjustment Case, Which Is Equally Applicable to Telephone Industry—Of Particular Interest in View of Growing Control by Commission and Rate Supervision by Local Bodies

By Frank R. Ford

EDITOR'S NOTE—The following is an extract from a paper read by Mr. Ford, who is a member of the firm of Ford, Bacon & Davis, New York, at the annual convention of the American Electric Railway Association, recently held at Atlantic City, N. J. The title of Mr. Ford's paper was, "The Theory of Street Railway Rate Regulation as Developed in the Coney Island Fare Case." In the course of his argument, the author discusses various methods of arriving at the valuation of the property of a public utility for the purpose of fixing a basis for computing equitable rates. This extract deals with what Mr. Ford believes to be the proper course to pursue in such a case. Although applied in this instance to a street railway, the discussion is, nevertheless, germane to the telephone industry, and of live interest in this day of wide rate adjustment and the spread of commission control of utilities. This extract is presented through the courtesy of the American Electric Railway Association.

The usual method of determining the cost of reproduction has been to make a careful inventory of the physical property, to which was applied market prices of machinery, materials and labor. Percentages were then added for engineering and superintendence, interest during construction, incidentals, etc. The total was called the cost of reproduction of the physical property. This was then generally depreciated to secure its present value, and to this was added the estimated value of the franchises.

While this might be proper for some purposes, it does not seem to be a logical method for ascertaining the cost of reproduction for use in a rate case. It would appear that for this purpose there should be determined the cost of founding and developing a new enterprise coextensive with the present one. In other words, let us assume that the streets are clear of tracks, and then ascertain the cost of reproduction from the inception of the idea in the mind of the promoter, through the period of securing rights and of financing to the completion of the construction, our plans and specifications being the actual design of the present line. Let the present cost include not only the market price of real estate, rails, machinery and labor, but also the current fee for services of promoters, lawyers, financiers, engineers and administrators. This is the basis upon which a competitive enterprise must enter the field and its rates be fixed.

Nor should the cost of reproduction now be reduced by the depreciation of physical property in order to arrive at the rate-fixing value. The value of the commodity, which is the service rendered, does not depend on the age of power house, car barns, feed wire, or even of tracks, or cars, if they are in reliable operating condition and in good repair. The value of electricity conducted through a wire, or of water through a pipe, will be just as much if the wire or the pipe be five years old or fifteen years old.

A proper reliability of service and condition of maintenance can be compelled by the Commission, but the replacement of the article, due to age, will not occur until it is obsolete. In other words, every property is partly worn out from the day it begins operation, and it would be an economic waste to provide a larger fund than is necessary for the renewals as they take place, except and to such an extent as such a fund should provide for unforeseen contingencies. Securities of the company are not retired as the property depreciates, because the larger part of the depreciation fund accumulated from income is by current practice with the approval of the commission expended at once for accruing renewals.

The more the property depreciates from the condition of newness the greater is the necessity for the maintenance of the original rate so that the company can provide for its upkeep. This principle has been recognized in decisions of the Railroad Commission of Wisconsin. The Public Service Commission's expert in this Coney Island case agreed that the depreciation should not be deducted from the valuation if the company had accumulated a depreciation fund to provide for current renewals, or if the security holders were liable for the replacement of the property, which is the case at present of the stockholders of this company.

In estimating the cost of development of the Coney Island Brooklyn Railroad, an inventory was prepared covering the work and expense items for the reproduction of the rights of the present company to construct and operate its railroad. This inventory, stated briefly, comprises the cost of time and expenses of all departments of the organization of the promoter and of the company, first during the promotion period, which is the time of obtaining rights and capital, and then during the construction period covering the time of expenditure of capital to the completion of construction. There is separately estimated this cost for the promoters' organization, the legal department and the technical department, through the preliminary development of the idea, the formation of the promoters' syndicate, the securing of the corporation's charter and the obtaining of its franchise from the municipal body and of its certificates from the Public Service Commission, together with the property owners' consents and those required from the minor city departments and other corporations. The time spent in connection with financing the enterprise is largely co-extensive with that of obtaining rights and comprises the various steps of underwriting and negotiating the sale of securities. After the franchises and capital are obtained the construction period begins by the organization of the permanent working force of the company, and continues through the general administration of the construction work by this executive organization.

In order to determine the time spent on each part of this work and the contemporaneous nature of a large part of it, there was prepared a chart of estimated time of reproduction subdivided as between these departments. The estimated time taken for each part of the work was based upon the actual time which has recently been required to secure similar rights in New York City under the present legal restrictions. It was estimated that three and a half years would be required from the inception of the project and the time that capital and rights would be obtained. The construction period was estimated from instances of recent construction work, to require two years and ten months additional, making a total of six years and four months, although the beginning of partial operation was assumed to take place one year before the end of construction.

The number of men in each department and their rate of pay were then assumed, giving, when allowance had been made for general expense items, the total expenditure in each department and for each part of the work. All of this was, as far as possible, based upon actual work and expenditure in other corporations, and was accompanied by a considerable amount of supporting detail.

The total cost of promoter's organization, legal department

and technical department during the promotion period was thus estimated at $421,200, the property owners' consents at $278,500, and the time and expenses of the permanent organization during the construction period at $195,640, making a total of $895,340 as the cost of development and administration of the enterprise until it was placed in operation.

Coming to the appraisal of the physical property, the company accepted the estimate of the experts of the Public Service Commission. This estimate was on the basis of subcontracts and amounted to a total of $4,615,838, to which we added $276,460 for incidentals based on detailed estimates, $108,864 for inventoried stock, tools and fixtures, 10 per cent for general contractors' overhead charges and profit, 5 per cent for engineering, and $561,345 for interest and taxes during construction, the last two items being the result of detailed estimates. The resulting cost of construction and equipment was $6,320,813.

The real estate of the company was appraised by experts and to this appraisal was added 10 per cent for the cost of acquiring land, such as brokerage, legal services, title insurance, value of buildings removed, etc. To the assessed value of the private right of way owned by the company on Coney Island avenue was added 150 per cent for additional sales value and cost of acquiring, this being the value of the "contiguity factor" adopted by the experts of the Railroad Commission of Minnesota from a careful study of the value of right of way real estate. The total cost of thus reproducing the real estate was $1,224,500. To these figures was added $250,000 as the estimated amount of working capital required by this corporation, and $609,245 as the estimated cost of additions and betterments necessary to produce an adequate modern system. The resulting total cost of reproduction new at August 31, 1909, was $9,299,898. This we stated as our estimate of the least cost of reproduction of this property as under any but the most favorable conditions it would reach a considerably larger amount.

This estimate did not include any allowance for the profits of promotion, for discounts and commissions on sale of securities, for the value of features of the present franchises that cannot be reproduced due to present legal restrictions, or the cost of development of the business of the deficiency below a reasonable return in the early operation of this property, and for the cost of development of technical standards comprising obsolescence of the horse system and of the early electric system. It was our contention that, strictly speaking, many of these items were not items of value and that ordinarily they should be allowed for in the rate of return applied to the valuation of the property. If, however, the rate of return is fixed at the legal rate of interest, a capital valuation should be given to them.

Interesting Insight Into Pastimes of America's Great Patriots—Also a Suggestion.

A dispatch from Santa Barbara, in the Los Angeles, Cal., *Times*, is as follows:

> Claiming that the Home Telephone Co. is using the national emblem or coat of arms as a trade-mark, Mrs. Isobel Strong, daughter of Mrs. Robert Louis Stevenson, of Monticello, has started a move calculated to force the company to take the insignia from its property.
>
> The management of the local branch of the corporation, however, politely but firmly refuses, saying that the trade-mark is not the national emblem, as it is without the eagle. The manager, Albert Schuler, states that it is the trade-mark adopted by every Independent telephone company in the United States and so far as he knows nothing will, or can, be done.
>
> It is stated that Mrs. Strong is gaining many adherents of her plan and that an actual, if not effectual, crusade will be commenced if some action is not taken by the telephone company. At the same time her brother, Lloyd Osborne, the novelist, is carrying on a similar campaign in New York. A few years ago Mrs. Strong headed a like movement in England and succeeded in having removed from the telephone book and slot boxes the English coat of arms used by one company.

TELEPHONY would make but a brief comment in the form of a suggestion to these very notable and very energetic people. Let the Shield alone. There are plenty of fads which will serve as subjects for highbrow concentration; there are even plenty of conditions which call for real reform. The use of the Shield by the Independent telephone companies of America does not prostitute the emblem; nor does it violate any of the highest ethics of the most exalted patriotism. In this application the Shield fitly symbolizes liberty, as opposed to tyranny, just as it has done from the early days. Why not devote such spare time and surplus vigor as may be available to some really useful end, as, say, providing homes for indigent cats, or possibly children? Or the founding of a Society for the Amelioration of Conditions Among Sickly Street Sweepers? Here are noble aims—aims that are worthy the consideration of even a Lloyd Osborne or a daughter of Mrs. Robert Louis Stevenson. But let the Shield alone.

Pioneer Bell Promulgates Principles of Telephone Courtesy in Condensed and Effective Form.

Much has been written of late concerning telephone courtesy. The Pioneer (Bell) Telephone Co. has, however, so well covered this subject, and its bearing on the telephone business, that there seems to remain nothing more that could be added that would strengthen the presentation of this important subject. This is how the Oklahoma company discusses the question:

The possession in marked degree of any worthy faculty should always be an incentive to develop that faculty. This company considers that its employes possess the faculty of being courteous to the public. To those who cultivate and exercise this faculty the company extends its congratulations and thanks; to those who may not have fully appreciated its importance, thoughful consideration of the following is suggested:

First: The principle that underlies courteous treatment of others is simply that of doing unto others as you would have them do unto you.

Second: In a highly complex and technical business such as that of the telephone business, there are many things that you with your training and daily experience understand with perfect familiarity, but which the public does not understand; therefore, do not assume that people should comprehend them without asking questions, but when they make inquiry of you give them the courtesy of a reply, just as full and clear as you can make it, and without any suggestion of superiority born of a greater knowledge.

Third: Words are only means of expression, and manner is quite as important; therefore, remember that a kindly and gracious manner is not only the sign and mark of a self-respecting man, but is to your words what oil is to machinery in making them move effectively to their purpose.

Fourth: True courtesy is no respecter of persons. It remembers that "a man's a man for a' that," and gives the civil word and the helping hand quite as readily to the ill-clad stranger as to an official of the company.

Fifth: Courtesy is not only something that the public has a right to expect of you, but it pays.

It pays in the friends it makes you personally and as a representative of the company. It pays in minimizing the friction of your life as well as that between the company and its patrons.

Live Items of News for the Railway Telephone Man

This is a Department of Progress—Practical Articles, or Informal Letters, on Topics of Everyday Interest, are Welcomed—Readers are Cordially Invited to Make This Department a Medium for the General Exchange of Information—Let Others Know of Your Good Work

Battery Consumption of Main Line and Local Battery Selectors—Showing the Saving in Battery by the Use of Local Battery Selectors.

By C. S. Rhoads, Jr., Engineer, Sandwich Electric Co.

Selectors in general use may be classified in the three following divisions:

Class 1.—Main line selector and main line bell—no local battery at way stations for selector or bell.

Class 2.—Main line selector with local battery bell, using two or more dry cells on the bell.

Class 3.—Selector with main line relay operating low wound selector, and bell with two or more dry cells.

The following are the writer's views on battery consumption for these three classes:

Class 1—Main Line Selector and Bell.

The up-to-date types of main line selectors use ten milliamperes of current, and windings have a resistance of 3,500 to 5,000 ohms, depending on the make. We will take a 5,000-ohm selector as a fair example to discuss.

A dispatching line of thirty stations using this type of selector will use approximately 300 volts main battery, consisting of 200 dry cells, with an output of 300 milliampers. The power consumption will be the current in amperes multiplied by the voltage (C. E.), which in this case is $300 \times .3 = 90$ watts. This is the total and only power

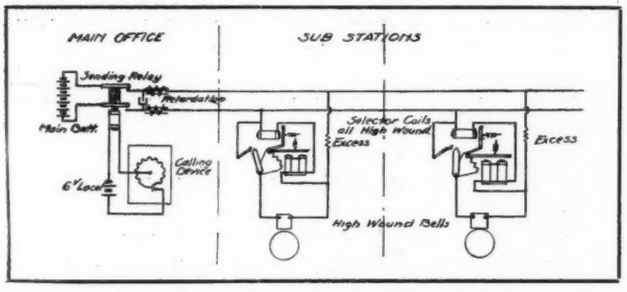


Fig. 1. Main Line Selector, Main Line Bell.

used, and comes from one main battery. As 50 volts is required at the terminals of the line coils the power used by each selector is $50 \times .010 = .5$ watt. Thirty selectors use $30 \times .5 = 15$ watts. This is used doing useful work in stepping up the selectors. The remainder of the 90 watts, or 75 watts, is lost in heat in the line, excess resistance at selectors and retardation coils at the dispatcher's office. Only one-sixth of the total power, therefore, does useful work; five-sixths is wasted.

The power drain on each of the two hundred dry cells is therefore 1½ volts × .3 amperes = .45 watt, which is a very heavy drain on each cell for every call.

Class 2—Main Line Mechanism—Local Battery Bell.

The main battery consumption is the same as with Class 1, except that no main battery is used to ring the bell, as there are two cells of dry battery at each station to ring its bell. This means additional maintenance expense. A type of selector which "rings on the open," i. e., no main battery flowing to the line while bell is ringing, with selector bell contact held mechanically, is the only Class 2 selector in which a local battery bell effects any saving.

Since the voltage required to step up a main line selector is also sufficient to ring a main line bell, it is not economical to add local battery for the purpose of ringing the bell, except for selectors that ring "on the open."

Class 3—Local Battery Selector—Local Battery Bell.

The line relay on this type of selector is usually wound to 2,500 ohms or higher. The current required is five

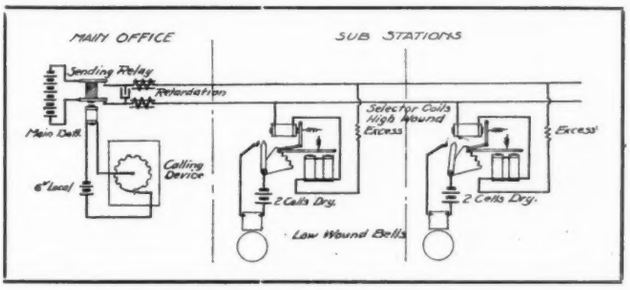


Fig. 2. Main Line Selector, Local Bell.

milliamperes at the maximum. The main battery for a line of thirty stations such as is described under Class 1, but using Class 3 selectors, would be 150 volts, 150 milliamperes, from 100 dry cells. The power consumption will be $150 \times .15 = 22.5$ watts. Of this, 3.75 watts does useful work closing the relay contact and the remainder is lost in heat in the line, excess resistance and retardation coils.

The local battery operating the selectors consists of two dry cells operating through 19 ohms (the selector) at 3 volts, giving approximately 160 milliamperes. The power consumption is $3 \times .16 = .48$ watts per selector and $.48 \times 30 = 14.40$ watts total for 30 selectors. This added to the line consumption, 22.5, gives 36.9 watts, the total battery consumption, except that additional amount used when the bell is ringing, which is not included as it is so small, and approximately the same with all classes of selectors.

The advantages of the local battery selector, in comparison with the main line type are therefore as follows:

Only one-half the number of cells are required in the main battery, and there is only one-half as much drain on them. This means double the life and only half as many cells. Not so much energy is lost in heat. On heavy circuits this means a big saving, for with busy circuits using more than three hundred milliamperes on main line selectors, a bank of cells will not last much more than three

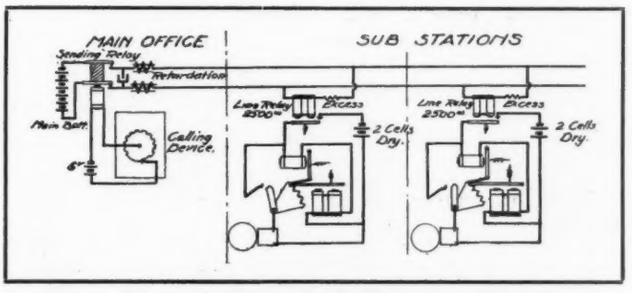


Fig. 3. Local Battery Selector and Bell.

months; while the main battery to operate local battery selectors would last eight to ten months, and there would be only half as many to renew. With the use of storage battery or a power generator the cost of battery loses its serious aspect.

The only disadvantage inherent in the local battery selector is that it means the maintenance of two dry cells at each selector, but as dry cells are used on all transmitters on dispatching circuits this is not a great disadvantage. The cells will last nine months to a year, and give service until they show no reading on a short-circuit test, and the maintainer will have been at each station to change transmitter batteries in the meantime.

Another advantage of the local battery, with its low main line voltage, is that a short-circuit on the line will not put the line out of service due to the fall of potential for as great a distance as a "short" at the same place would, on a high voltage main line circuit.

In making a choice of the type or class of selectors for a given circuit several points are worth taking into consideration. If storage battery or generator current supply is to be used, Class 1, or the main line selector has the advantage, since power cost is greatly reduced and means centralized cheap power with line trouble as the only serious negative factor. If dry cells are to be used, circuits of not more than fifteen selectors can use the main line type, as the battery consumption will not be excessive. Dry cells should not be drained too heavily. If the circuit is to have thirty or forty or fifty selectors, as some circuits have, with the main line selector the battery output would run to nearly one-half ampere, which is excessive, and is a load under which an ordinary bank of cells will soon give out. These long, heavy circuits therefore are more cheaply maintained if Class 3, or local battery selectors are used.

The higher the main battery voltage is, the greater will be the extent of the trouble zone due to a short-circuit.

Working Tools and Instructions.

By J. A. Kick.

Good workmen with poor tools may do good work.

Good workmen with good tools should do good work.

Good workmen with good tools and having proper instruction and supervision will do good work.

Poor workmen with good tools cannot do good work.

Poor workmen with poor tools—better let George do it!

Poor workmen may improve by using good tools; although they may spoil the tools.

The improvement should be worth the price of the ruined tools.

Much of the poor work done in railway telephone and telegraph service is not properly chargeable to the workmen themselves, but to lack of systematic supervision and instruction.

A lineman doing maintenance work on the line as well as installing equipment in the way offices usually has no tools except climbers, heavy pliers, connectors and a jack knife.

In nearly every case these men will assert that they have been repeatedly refused the tools necessary to do the work, and that they were finally forced to believe that the company's standard of work was the best they could do with the kit of tools they were known to have.

At an original cost of about $15 per man all stationed linemen could be well equipped, and this expense would appear to be a good investment.

The replacement cost per year should not exceed $5 per man if an accurate account were kept, charging each man with all items of the outfit. Of course, men should not be relieved of the account except in a regular, prescribed manner by which the company would be protected from loss by carelessness.

The up-to-date stationed lineman must be a jack-of-all-trades, doing carpentry, plumbing and other skilled work. Some of these handy men have supplied themselves with tools of their own to do work which they are asked to do after having been refused tools to do it it with.

All of the good men and some of the present indifferent ones would improve in their work if properly equipped, while the hopeless ones could and should be found out and replaced for the good of the service.

Wire chiefs' stations should be supplied with a full set of small hand tools and soldering outfit, as the best wire chiefs in railway work are handy men who are not only good wire chiefs but can do creditable work in wiring and repairing equipment.

No railway telegraph plant is of sufficient size to warrant an equipment man for duty at the one plant, therefore the wire chief should be supplied with tools to enable him at least to make temporary repairs to his plant during the absence of the maintainer.

A large percentage of the linemen have been in the railway service from 20 to 40 years, and many of them would have been of much greater value had they been supplied with the necessary implements of their trade, together with proper instructions and coaching.

Oregon Short Line to Use Telephone for Dispatching.

Mr. B. F. Frobes, of Salt Lake City, Utah, superintendent of telegraph of the Oregon Short Line, has reported that plans are now practically completed for the installation of new telephone circuits to be used for dispatching trains on that line. Construction will begin about the first of July.

Northwestern Road Extending Telephone Circuits.

The telephone circuit which is being constructed by the Chicago & Northwestern Railroad on its line between Fremont and Omaha, Neb., is reported as being practically completed. When this work is finished wires will be strung between Missouri Valley and Fremont, and will complete a dispatching circuit between the Missouri Valley and Omaha.

M. K. & T. Telephone Lines Ready July 15.

It has been reported that the telephone lines of the Missouri, Kansas & Texas Railroad in Texas will be ready for operation on July 15. This work is going on under the direction of Superintendent of Telegraph Hall. The company anticipates that the new service will greatly improve traffic conditions, both with respect to passenger and freight service.

Santa Fe Uses Telephone Only in Southern California.

It is reported from Los Angeles that the Santa Fe Railroad Company is now using the telephone along its entire track system in southern California. Portable telephones are a part of the train equipment and the new service is giving the greatest satisfaction.

Mr. William M. Hayes, recently appointed superintendent of telegraph of the Pere Marquette Railroad Co., with headquarters at Detroit, Mich., made his start in life with that road in November, 1892. He began as an operator and agent, then became stenographer to the general manager, secretary to the general superintendent, and finally chief clerk in the superintendent's office at Grand Rapids, which position he held until his recent promotion.

Alexander Graham Bell to be Honored.

A memorial will be erected on Dominion Day, July 1, 1912, at Brantford, Ont., Can., honoring Alexander Graham Bell, inventor of the telephone. Brantford is Mr. Bell's birthplace.

Some Methods and Results of Testing Dry Batteries

Conclusion of Electro-Chemical Society Paper, Begun in Last Week's Telephony—Effects of High and Low Temperatures Vary with Load—Tests of "Shelf" Deterioration—Details of Telephone Cell Testing Device —Special Characteristics of Ignition Cell Demand Different Test, Here Explained

By W. B. Pritz

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The effect of temperature also varies with the nature of the service, high temperatures giving longer service where the drain is heavy, while low temperatures are favorable for light drain service lasting over a considerable period. This effect is shown in the following table, the figures representing hours of service given by cells connected continuously through various resistances, as shown, at four different temperatures. The tests were continued until the working voltage fell to 0.5 volt. The maximum value for each resistance is underscored:

Ohms Resistance	2	4	8	16	32	40
0°	40	80	270	560	1800	2550
25°	60	94	260	700	1550	1630
50°	70	160	350	650	1250	1420
75°	65	158	315	615	1390	1510

Effect of Storage.—Of prime importance in dry cell testing is a knowledge of the effect of temperature upon the rate of deterioration of cells when left on open circuit. To determine just what this effect might be, a number of cells were stored at seven different temperatures. The following table gives the initial currents and the drop in amperage after 10 weeks, expressed as a percentage of the initial values.

Temperature	Initial Amp.	Per cent. drop in Amp. in 10 weeks
5°C.	18.1	4.4
25 "	22.0	10.0
35 "	21.0	19.0
45 "	22.8	25.0
55 "	23.0	52.0
65 "	20.5	71.0
75 "	21.0	98.0

The greatly increased rate of deterioration on open circuit at high temperatures no doubt accounts for the poor service obtainable at such temperatures when long periods of time are necessary for its completion. A knowledge of this effect of temperature would undoubtedly explain the cases, which are

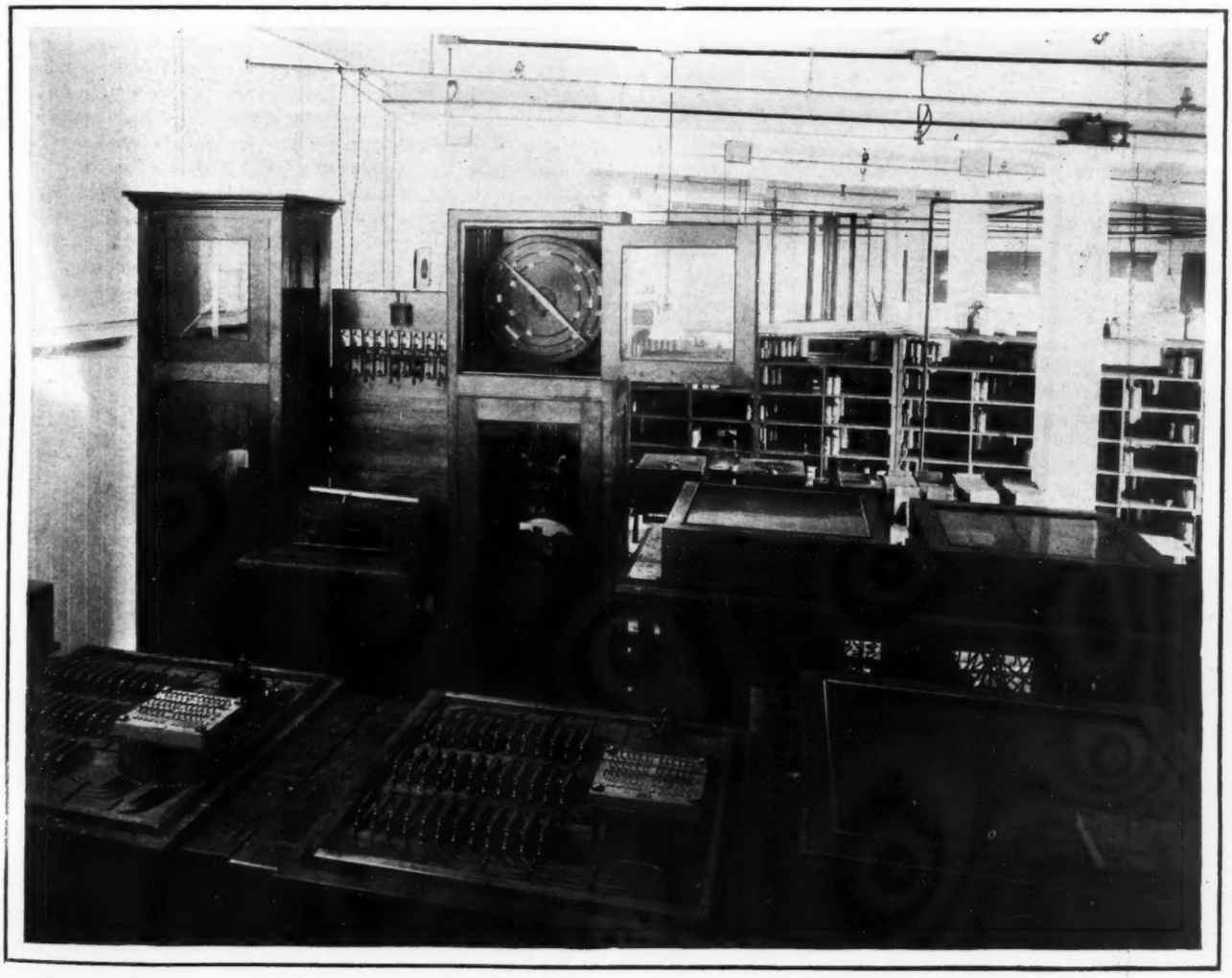


Fig. B. Corner of National Carbon Testing Laboratory with Test of Telephone Cells in Progress.

at times brought to our attention, of cells rapidly deteriorating upon a dealer's shelves, from "no cause whatever."

The cells should be stored in a dry, cool place, and not in the corner behind the stove.

The Rating of Dry Cells.

In interpreting the results obtained from a test of various grades of cells, we wish to caution against drawing definite conclusions from the outcome of a single or a small number of tests. When the matter of choosing a brand is of much importance, it is necessary to run a series of tests over a period of six months or a year. In this way a very good idea may be obtained of the average service results which may be expected.

In the following table are given the results of 10 monthly

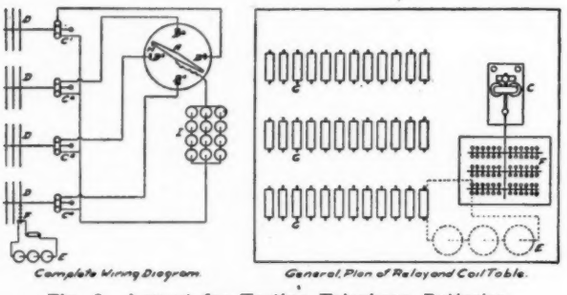


Fig. 3. Layout for Testing Telephone Batteries.

tests completed during 1910 on two brands of dry cells. The values represent the length of service given:

Tests—	1	2	3	4	5	6	7	8	9	10	Av'ge
Brand A.....	42	35	38	33	60	45	48	35	66	48	45.0
" B.....	30	37	24	25	27	40	48	42	40	40	35.3

It is very evident from a comparison of the averages of these tests that brand *A* is much superior to brand *B*, yet had the consumer the results from tests 2 or 8 only he would have undoubtedly arrived at a very erroneous conclusion regarding the real merits of the two brands.

In regard to the terms in which the results of dry cell tests should be reported, there is some difference of opinion, some authorities contending that the ratings should be expressed as the number of ampere hours given by a cell under specified conditions to a certain working voltage value. Others claim that more practical meaning is attached to a statement of the length of time during which the cell is able to maintain its working voltage above the specified limiting value.

It is our opinion that that method of rating should be used which gives to the consumer the exact information which he desires, hence we favor the rating of cells by the length of service of a given kind which they are capable of giving.

It is perfectly evident that the consumer is interested in the length of service which he is able to obtain from a battery, and not in the amount of energy given. At first thought it might appear that the ampere-hour capacity of a dry cell bears such a relation to length of service that either method of rating would give the same information. Such is not the case, however. Differences in discharge rate cause vast differences in the number of ampere hours obtainable from the cell. From the nature of the discharge curve, it is quite difficult to calculate the length of service obtainable under the conditions limiting the ampere-hour rating, while to go further and deduce from the rated ampere-hour capacity under one set of conditions, the output to be expected under different conditions becomes a hopeless task. Equally hopeless is the final interpreting of the result in terms of length of service.

Again, a dry cell does not always give length of service which is proportional to ampere-hour output. It is easily possible to produce two dry cells which will give equal length of service, the ampere-hour output of which will show marked differences. Hence a statement of the ampere-hour capacity of two brands of cells is very apt to be misleading, as it does not settle definitely which is the better cell to use upon a given service.

For research purposes the energy or ampere-hour output of a cell is very useful, but as a practical rating for dry cells, it is not satisfactory, especially from the standpoint of the consumer.

Recommended Tests.

In the foregoing pages we have pointed out the cause for and results of the lack of uniformity in the methods of testing dry cells. We are of the belief that an adoption of tests which might be accepted as standard by consumer and producer alike would be of direct benefit to all concerned. Some time ago a committee was appointed by this society for the purpose of ultimately bringing about such a standardization. We would like at this point to propose for consideration certain tests covering the two most important services, namely, telephone, and gas engine ignition.

The nature of these services was fully outlined in papers delivered before the society by Dr. J. W. Brown and Mr. D. L. Ordway, and therefore will be touched upon only in so far as is necessary to establish the relationship of the service to the tests which we propose.

Telephone Service.—The battery circuit of the telephone consists of the transmitter and the primary winding of an induction coil, the secondary of which sends the impulses to the line. The total resistance of the circuit varies from 15 to 20 ohms in different installations. It is customary to use two or three cells in series, the tendency being to favor the latter number, and it is recommended by one of the important telephone companies that the battery should at all times give a current of more than 0.14 ampere at the end of one minute after the battery has been disconnected from the transmitter and connected in circuit with an ammeter and a resistance of 20 ohms. This specification necessitates that the working voltage be constantly 2.8 volts or more. It is probably true that satisfactory service may be obtained at a much lower working voltage, but through conservatism this end point has been established, and the cells are, as a rule, removed by test. Although accuracy of method is of primary importance, simplicity and adaptability should not be overlooked in the selection of a suitable test for general adoption. We have been using for

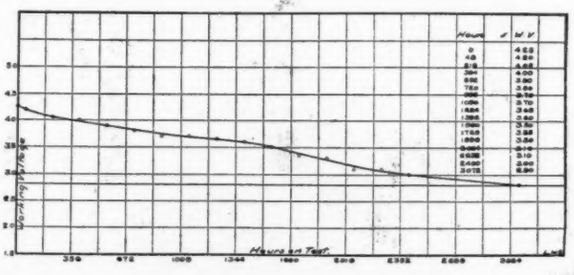


Fig. 4. Representative Curve Telephone Batteries Test.

some time a test which requires a minimum of care and supervision and which is quite comparable to the more complicated tests used. It subjects 3 cells in series to a discharge through 20 ohms resistance for a period of two minutes each hour, during 24 hours per day and 7 days per week, until the working voltage reaches the limiting value of 2.8 volts, the results being reported as the number of hours' service to this cut-off point.

The energy drawn from the battery in this test is approximately equivalent to that consumed in the more complicated methods, the batteries give practically equivalent periods of service, and the number of cells, resistance in circuit, and cut-off point are identical.

The regularity of this test which we propose eliminates the mechanical appliances necessary to obtain decreased night and

Sunday service, a feature of the more complicated methods of testing cells for telephone service. The left-hand portion of Fig. 3 shows diagrammatically the apparatus necessary and its arrangement. The hand of the clock A revolves once per hour, closing by means of the contact H the circuit of battery I in turn through the contacts B, B_2, B_3 and B_4. This current magnetizes the cores of the telegraph relays, C, C_2, C_3 and C_4, causing the extended armature arms D to fall, bringing the inverted U-shaped fingers F into mercury cups, through which the test battery circuits E are closed. Each contact B is of such length that two minutes are required for the passage of the contact H.

At the right of the figure is shown the arrangement of the relay and coil table. The test batteries are stored underneath the table and are read from the mercury cups F.

Fig. 4 shows a representative discharge curve obtained from a battery of three 2½x6-inch dry cells of a well-known brand. The curve passes through the values of the working voltage at the end of the discharge periods.

Fig. B shows a portion of the installation for the testing of cells for telephone service. The contact arm on the clock closes in turn the circuits through the various relays shown, causing the dropping of the armature arm and the consequent closing of the individual test batteries by means of the small inverted U's which dip into mercury cups. The test batteries are installed under the relay and coil table.

It is impossible in the scope of this paper to enter into a discussion of the ignition question, one with which all are more or less familiar. We wish here only to outline briefly the results of our investigations in this field. In developing a test suitable for this service, we used a 4-cylinder automobile engine, equipped with a standard make of spark coil. With different numbers of cells in series, resistance was cut into the circuit until the engine failed to operate satisfactorily. We thus reached the limits of satisfactory ignition for these particular conditions. Readings at this point were taken of the working voltage, average drain on the battery and the value of the impulse which the battery was capable of forcing through the primary winding of the spark coil.

The work was then duplicated, using in turn all the leading makes of coils. Thus we were able to formulate what may be considered as average limiting conditions of actual ignition service.

It was found that in the majority of cases 5 or 6 cells in series gave ample voltage. Efficient service was obtained in some cases with as low a drain on the battery as 0.2 or 0.3 ampere. It is very probable, however, that 0.5 ampere more nearly represents the average drain which could be maintained by the adjustment of coils without proper instruments.* A battery was found to give inefficient service when the impulse of current which it was able to send through the primary winding of the spark coil fell below 2 or 3 amperes.

From these findings we have developed the following test, which we have adopted as our standard for ignition service. A battery of six cells is connected in series with a 16-ohm coil, which permits an average drain on the battery throughout its life of approximately 0.5 ampere. Readings of the working voltage are taken at intervals throughout the test, the most important reading, however, being the impulse of current which the battery is able to force through a ½-ohm coil connected in series with the ammeter and in parallel with the 16-ohm resistance. When this value at the end of a period of contact falls below 4 amperes, the battery is considered unfit for service and discarded. This value is taken, rather than 3 amperes, in order to be conservative. We have thus duplicated all conditions adopted from our investigation as representing the average ignition service. In setting upon the length of time during which the battery should be discharged, we interviewed many users of automobiles, and the consensus of opinion was that, after the novelty of an automobile wore off, the length of time during which a car would be in operation would average not far from 2 hours a day. Our test batteries are therefore discharged for this length of time each day, divided, however, into two periods, one hour in the morning and one in the afternoon. As a test for lighter service, we sometimes subject the battery to two drain periods of ½ hour each. If the amount of testing be not too great, the circuits may be closed by hand, in which case no apparatus is needed other than instruments for reading, a number of 16-ohm resistance coils and a 0.5-ohm coil for use in taking the impulse readings.

We have used this test satisfactorily for several years, and believe it to be more trustworthy, easier in application and more representative of service conditions than any test which has come to our notice. By slight variations, chiefly in the time of discharge, it may be made representative of any of the various types of ignition.

Shelf Life Testing.

Since it is often the case that quite an interval of time may elapse between the manufacture and installation of a cell in service, a knowledge of what may be expected during this period becomes of no little importance, and hence an open circuit or "shelf life" test is quite essential.

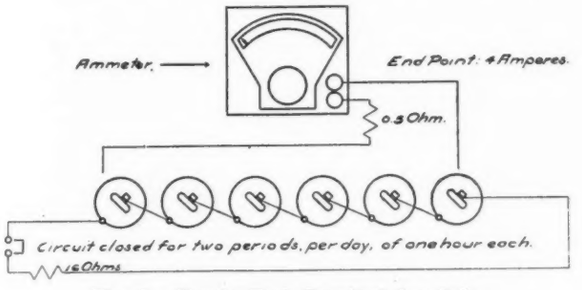
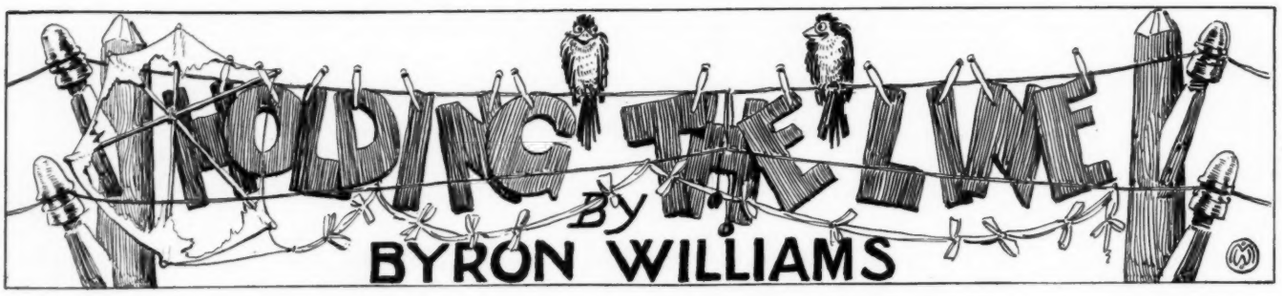


Fig. 5. Simple Test Required for Cells.

The ideal method for such a test would be the determination of the decrease of service capacity due to storage over definite periods. This practice, however, would entail much labor and expense where the amount of testing to be done is large.

The method generally employed to determine shelf life consists of reading the initial voltage and short-circuit current of a representative sample of cells, followed by current readings at intervals of one or two months, depending upon the nature of the cells in question. The ammeter for reading short-circuit current should be dead beat, and with its leads should have a resistance of 0.01 ohm. Two 30-inch lengths of No. 12 lamp cord make very convenient leads. The results are merely indicative of increase in internal resistance, and bear no definite relation to the service which the cells may give. However, this information, coupled with familiarity with a brand of cells, becomes a very good indication of its quality. It also serves to indicate any serious defects of manufacture. The cells are kept on the shelf until the short-circuit current has fallen below 10 amperes. This point is arbitrarily chosen, as it represents a point below which it would be difficult to market the cell. For practical purposes, the results are expressed as the number of months during which the short-circuit current remains above this cut-off point. Much more meaning, however, is attached to the rate at which the current falls, generally reported as the drop in amperage expressed as a percentage of the initial amperage. This is especially true when investigation of the quality of cells is the object. For practical purposes, however, the first rating given, i. e., months to 10 amperes, is perhaps preferable.

*The value of the approximate drain, viz., 0.5 ampere, does not apply to the various single spark appliances now to be obtained, which are much more economical of current.



Brought the Horse Doc.

A drayman who had made a bunch of money decided he would get into a more elevating business and accordingly started a telephone exchange. He didn't know much about the game, but he decided it must be a nice easy way to get rich, and when the handsome switchboard arrived and the workmen started to set it up, he went down to the stable very much delighted From there he ambled over to the corner drug store to tell the boys all about it. While doing this someone called him to the telephone. It was his new operator.

"Is this you, Mr. Abernethy?"

"Yis, mom. It is. What's wanted."

"Why, I just called you up to tell you there is something the matter with the plugs. They——"

"Th' divil there is!" shouted the drayman. "Is it bad?"

"Oh, yes; I doubt if they will be of any use."

"Holy Moses, how many of them?"

"All of them!" snapped back the operator, clear as a crystal.

Five minutes later Abernethy and the local veterinary were running for the stables as fast as they could hike, where, to their amazement, they found the plugs meekly chewing hay as usual.

Just before Abernethy fired the new operator, he learned to distinguish telephone plugs from dray horses and changed his mind.

The Suburban Line.

Upon the telephone we talked
  Of freedom and the simple life,
Of what the country air will do
  For those who lead the maddened strife.
We talked of zephyrs and of seeds,
  Of June-time weather and of bees,
Wove raptures out of tasseled plumes
  And calyx of the budding trees!

Her pinks and asters all were up,
  She told me with a sparkling eye.
Her kudzu vine was climbing fast—
  And, oh, her peas were two feet high!
Nasturtiums! All doing fine—
And then I said, in gentler tone:
"I'll just drop over, if I may,
  And ring off on the telephone!"

(Five minutes later.)

"Your bleeding-heart," she shyly said,
  "Is quite the finest on the street."
"I'll trade it to you, dear," I said,
  "For tulips that are blushing sweet!"
And as the phantomed June-time sky,
  Blent splashing sun-shafts dipped in wine,
She swapped her two-lips, ruddy red,
  For that one bleeding heart of mine!

Some People's Tempers.

You know that axiom about the gods and the angry individual: "Whom the gods would destroy, they first make mad." Some of you know of the man who defeats his own purpose by becoming so angry at the operator he chokes, stutters and finally explodes without getting his complaint understood. You may know the man who gets mad and swears over the line. Well, these people have been outdone by a woman. Her temper was worse than that of the angry snake that bites itself when it cannot reach its foe, far less to be desired than the suburbanite who throws the lawn-mower into the lake because it will not cut the grass, more irascible than the boy who kicks a stone with his big toe because ma won't let him go in swimming. This woman got so mad, she killed herself—and all because the line was busy.

"Line is busy; call again," advised the operator.

The next time the woman tried to use the telephone, she got the buzz signal in her ear.

And then she got two buzzes. All this time she was getting madder and madder. Finally when she could not raise central, she grabbed a revolver from her husband's trunk and shot herself. Womanlike, she didn't shoot as straight with a gun as with a rolling-pin, and will recover. In the meantime, the president of the telephone company is safe, his family isn't poisoned nor the poles chopped down. "Whom the gods would destroy, they first make mad."

Use the Telephone.

A Missouri man went to Washington to sell horses and reported to his local editor as follows: "The people here travel on cars run by electricity and do not need roadsters; they ride on bicycles and in automobiles and don't need fast trotters; they go up in airships and get their thrills without riding bronchos; they gamble by telephone and don't need race horses, and the government is run entirely by jackasses—so there you are!"

Making Money Fast.

The girl at the other end of the wire in the Tribune office got an advertisement the other day that read like this:

For Sale — Michigan humming birds, dwarf species, just arrived, going fast. $2 a pair. Mail check to J. A. Smartson, box 245.

A few days later it developed that the townsfolks had bought 47 dozen of the nice little humming birds, which turned out to be yellow jackets. Of course every purchaser got stung!

Assuring the P. M.

I had occasion a few days ago to drop into the postoffice in a village not a thousand miles from Chicago. While I was engaged in conversation with the postmaster, the telephone rang. When the P. M. had heard the request, he replied:

"I am sorry, but the postoffice inspector has forbidden us answering mail calls. You will have to come to the office and see if you have anything here."

What the party said to the postmaster was this:

"Oh, that's all right, sir, you can tell me just the same because this is a female talking!"

This reminds me of the story of the two women who were traveling and came to a toll gate where they were promptly stopped by the toll keeper.

"How much to pass?" asked the driver.

"Ten cents for a man and a horse," said the keeper, opening the gate.

"All right; get out of the way!" said the woman; "we are two old ladies and a mare!"

"What in the thunder would a man want to put slugs intew a telephone fer?" said Eph. Sidebottom of the rural circuit to the editor yesterday. "It's bad enough to keep 'em off'n the apple trees let alone savin' 'em in a box!"

Queries on Theory and Practice

By Arthur Bessey Smith, E. E.

Voltage on One Unit of Converter Falls Off.

We have a converter here, four-unit type, transforming current for 16⅔, 33⅓, 50 and 66⅔ cycle bells. Now the first two and last one work very well, but the 50 cycle unit does not hold up for voltage. I adjust it up to correct voltage and frequency and it runs all right for perhaps a day, then the voltage will drop to 110 when it should be 135, and the bells will ring very weak. I have cleaned the contacts very carefully with a jeweler's file and they are clean and smooth.

The voltage on the converter is as follows: 16⅔ cycles, 85 volts; 33⅓ cycles, 110 volts; 50 cycles, 113 volts; 66⅔ cycles, 170 volts.

We ring close to 100 bells of the 50 cycle type. Can you tell me the cause of this? We have two sets of vibrators and one set of transformers, and we alternate the vibrators a day at a time. We have the reversal switch properly wired.

First make sure that there are no poor contacts or leaky wires connected with the set. Often a loose contact is responsible for erratic action. Follow the maker's directions regarding adjustments. If this fails, your transformer may have a partial open or a few turns short circuited. Consult the manufacturer. If he cannot suggest a remedy promptly he will ask you to send it back for test and exchange.

Transposing Local and Trunk Lines for Phantom.

I enclose herewith a sketch of some circuits (Fig. 1) and ask that you give me some information in regard to phantoming two of these, in order to get a third circuit. Circuit No. 2 is a trunk circuit between two exchanges 18 miles apart. No. 3 is a party line to have four bridging stations, and extends five miles from *A*. No. 1 is another party line going on the lead for two miles. From the central office at *A* to the city limits the three circuits go on different 10-pin arms, and from there they go on 6-pin arms to *B*, in the order shown. From *A* to the city limits is half a mile. From *B* Nos. 2 and 3 go on brackets to *C*.

Now what I want to do is to phantom Nos. 2 and 3

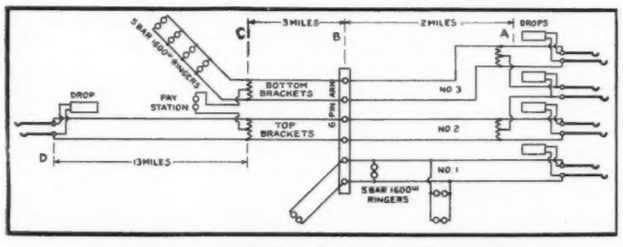


Fig. 1. Layout of Circuits Before Phantoming.

and put a pay station on the phantom at *C*. Will you please advise me where to cut in transpositions in the physical circuits, and also how to transpose the phantom; also give some information in regard to the coils to be used. The resistance of 2 and 3 will be almost exactly the same from *A* to *C*, when they are crossed at *C* and measured at *A*. You will note that there is nothing on either circuit from *A* to *C*. What information can you give on the above arrangement, and whether you think it will work satisfactorily or not?

In general, the plan which you propose will work very well. The two repeating coils cut into the toll circuit, No. 2, will reduce the transmission efficiency of that circuit between the two exchanges, but if you use the best coils, your subscribers will not notice the difference. Although it is considered necessary to have the two physical circuits side by side, and on the same cross-arm, it may not disturb the phantom circuit to have them on different arms for the short distance of half a mile. You have shown the phantom coils as simply bridged across the physical circuits. This will give noise and cross talk on the phantom, because the two legs, beyond *C*, will differ in static capacity. You should cut in complete repeating coils, as shown in Fig. 2. This isolates the phantom sections from the rest of the line and gives you more nearly a perfect balance. The coils must be designed for efficient ringing as well as talking. Write to a responsible manufacturer, ask for "repeating coils for phantom work," and he will quote you on the proper article.

Transpose line No. 1 every quarter mile regardless of

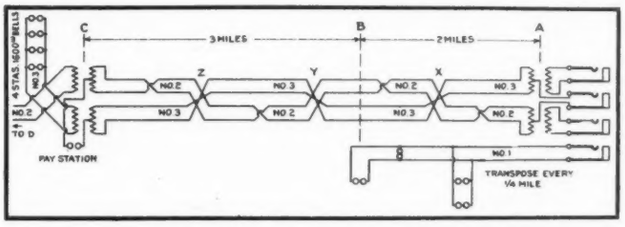


Fig. 2. Transpositions in Phantom—A Special Case.

Nos. 2 and 3. Divide the five miles from *A* to *C* into four equal parts, as indicated by the three points, *x*, *y*, and *z*. Transpose the phantom and physical circuit No. 3 at each point as shown. Then transpose No. 2 half way between the phantom transpositions, as is indicated. This will give you quiet circuits, if you maintain good insulation.

Responsibility and Duties of the General Manager of a Local Telephone Company.

The following hints on making an Independent telephone company successful are taken from a paper read by Albert Schuyler, general manager of the Santa Barbara Home Telephone Co., at a recent convention of the California Independent association.

The general manager should be a business man and, besides this, should be a practical telephone engineer. He should be honest with himself and this will make him honest with his company, its patrons and employes. He should have absolute authority over the employes under him, because without that he cannot obtain results that will satisfy even himself, to say nothing of satisfying the stockholders and directors. He should select for heads of the different departments people who are thoroughly qualified to fill such positions, and then he should hold the different heads responsible for the results of their departments. He should make them feel that it is "up to them" to get results in their own way, but that they should consult with him as to their plans.

He should keep in close touch with all different departments so as to know what is being done, and what money is being spent, as well as the revenue which is being obtained; he should approve all estimates for new work, and for maintenance; he should not allow new extension work to be done unless the revenue to be derived will bring an interest on the money invested after paying operating, maintenance and depreciation expenses. He should investigate in detail every phase of the business as far as possible, and if extension work is to be done, as is always the case in the telephone business, he should have it done where the least amount of money invested will bring the greatest amount of revenue, get permanent and good-paying subscribers. Let the other fellow have the poor-paying subscribers. We don't want them.

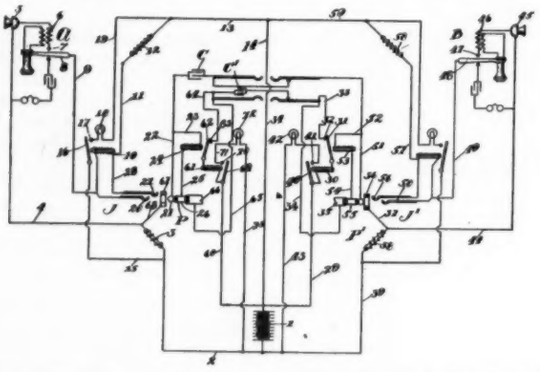
From the Patent Office

Max W. Zabel

Telephone System.

H. P. Clausen, Chicago, Ill., Patent 992,165, May 16, 1911, Assigned to Stromberg-Carlson Telephone Mfg. Co.

The common battery system herein illustrated contemplates permanent connection of the common battery 1 to the line wires of the subscribers through the interposition of impedance coils. Thus the battery 1 supplies current through permanently connected impedance coils 3 and 12 to the subscriber *A* and through the impedance coils 38 and 58 to the subscriber *B*. No



battery current is on the cord circuit as the cord circuit strands only conduct voice alternations, the cord circuit being provided with condensers *C*, *C'*. When the plug is inserted the line relay 10, having previously been energized by the removal of the telephone from the hook at the subscriber's station, is shunted by the clearing-out relay 24, thereby to extinguish the line lamp 18. When the subscriber hangs up the line relay 24 is de-energized, thereby closing circuit through the relay 61 to ignite the clearing-out lamp 72.

System for Registering Calls and Locking Telephones.

E. L. Buxbaum, Chicago, Ill., patent 989,762, April 18, 1911.

A system for registering calls and locking the telephone instrument includes a lock for the telephone hook. A register is also provided at the substation, together with actuating means for the register. A key provided for the lock has two positions, in one of which it releases the lock without affecting the actuating means of the register, and in the other of which it releases the lock and causes the actuating means to operate the register. An auxiliary register is also provided and operates with every movement of the lock.

Telephone Lock and Call Register.

E. L. Buxbaum, Chicago, Ill., patent 989,761, April 18, 1911.

A telephone lock and call register includes a casing constructed and arranged to be secured upon the stem of a desk telephone, directly beneath the hook. A locking bar for the hook is movably mounted in the casing. A register is also provided within the casing, and a device for controlling the locking bar. Means are also associated with the device for actuating the register.

Automatic Selecting System.

F. Schoenwolf, Chicago, Ill., patent 988,390, Apr. 4, 1911, assigned entire interest to Kellogg Switchboard & Supply Co.

This invention relates to means for controlling automatic switches. The invention is for the purpose of preventing automatic switches from assuming a position between contacts and to prevent other improper action, and is shown herein as applied to an ordinary switch having the ordinary driving magnet. The invention contemplates the provision of two operating circuits for the magnet, one a primary circuit being controlled by a front contact of the operating relay, and the other, which may be called a secondary circuit, includes a back contact of the operating relay and auxiliary contacts of the switch. This secondary circuit is not employed at all except at such times as, by faulty operation, an uncompleted step of the switch has occurred, at which time the premature de-energization of the operating relay allows the closing of the back contact, included in the secondary operating circuit of the magnet.

Telephone Muffler.

F. W. Cook, Denver, Colo., patent 990,527, April 25, 1911.

In this patent is disclosed a device which is to be fitted to the transmitter of a telephone for confining the sounds and preventing any one in close proximity to the instrument from hearing the conversation of the person sending a telephonic message, and at the same time excluding external sounds so that the recipient of the communication may hear the message with distinctness. The device is collapsible and may be carried in the pocket.

Electric Current Controller.

E. J. Burke, New York, N. Y., patent 988,440, Apr. 4, 1911, assigned one-half to J. Q. A. Whittemore, Newton, Mass.

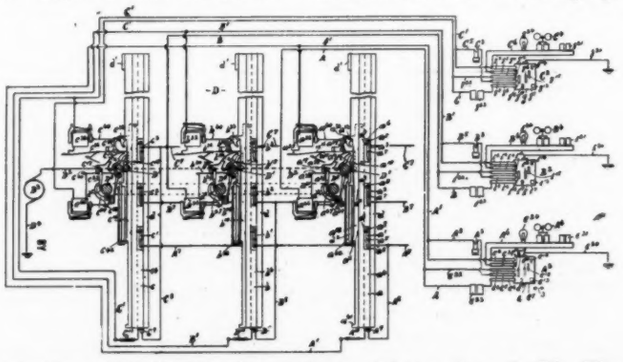
Means are set forth in this patent whereby a plurality of stations may be successively interconnected. Contacts for interconnecting the stations are located at one of the stations; switches are located at the other station to operate the contacts. A gravity-actuated device operates the cntacts, and magnetic means associated with the substation switches operate the gravity device.

Electric Exchange System.

A. T. Brown, Syracuse, N. Y., Patent 992,333, May 16, 1911, Assigned to Wilbert L. Smith, Trustee.

The automatic system herein outlined shows the subscribers' station as being connected respectively by the conductors *A*, *A'*, *B*, *B'*, *C*, *C'*, with the central station *D*.

Letters *a*, *b* and *c* represent the automatic switching apparatus. *D'* shows a main conductor 1 connected to each switching ap-



paratus and leading by the conductor D^2 to a dynamo D^3. The switching apparatus *a*, *b* and *c* are provided with movable terminals a', a^2, a^3, b', b^2, b^3, and c', c^2, c^3, which are designed to engage the fixed contact terminals, A^7, B^7 and C^7. Cross-conductors A^8, B^8, C^8 are shown, which terminate at circuit breakers A^9, B^9, and C^9 to insure secrecy of conversation. To make the contacts, the rack a^{10} is used, and it is operated by means of a dog a^{14}, a suitable stop a^{15}, and a motor D^5. The patent papers illustrate in detail the switching mechanism and the calling devices.

Legal Cases and Decisions

By A. H. McMillan

Granting of Franchise Optional with Kentucky Councils.

Will you kindly tell me the law on a city council being compelled to grant another franchise in a town in Kentucky where another system is now in existence? The mayor of this town claims that if another company applies for another franchise at a rate cheaper than the present company is now giving, the council would be compelled to grant it. We contend that it is optional with the City Council to grant another franchise or not. If you will kindly advise us the law on this for Kentucky, we will appreciate it very much, as we desire to present the matter at the next session of the council.

There is nothing in the statutes or constitution of Kentucky, so far as we can find, that renders it mandatory for the City Council to grant a telephone franchise. Before the franchise is granted, the municipality must advertise for bids and award the franchise to the highest bidder, having the right to reject all bids. Constitution, Section 164.

Unwritten Right-of-Way Is a Mere License.

Please give your advice concerning the following matter:

In 1900 we built a rural line from ——— to ———, and at the time of building consent was secured from a land owner to let the line go through her property, although no written right-of-way permit was signed. Since that time she has died and the property has fallen into possession of her son, who says that we have no right on the property, and refuses to let us repair the line, and further says that we must remove the line from his property. We are an incorporated company, and have frequently made repairs on the line of this property and until now no objections have been made.

Can we hold our right-of-way, and if not, can we condemn a right-of-way by law?

An unwritten right-of-way is a mere license which may be revoked at any time by the property owner. You are, therefore, not in position to hold your right-of-way. You can, however, condemn a right-of-way by proper legal proceedings. McMillan on Telephone Law, Sections 88, 89; also Chapter IX.

Right of Telephone Number.

Circuit Judge Amick, at St. Joseph, Mo., in a Winthrop receivership case has held that since a telephone number has been used for a long time in connection with a mercantile business, and is generally known among the patrons, it has a distinct commercial value and may be regarded as one of the assets of the business. Over such a number the telephone company has no control. It cannot arbitrarily take the number away and give it to the competing concern.

This ruling goes farther than any other case upon the subject. The decision is not by a court of last resort, but the ruling may possibly be followed by higher courts.

A decision going almost as far as this has recently been made by the Court of Appeals of Kentucky. In a Kentucky case a petition alleged that plaintiff's telephone number for ten years had been "South 125," that by the use of such telephone the public had become cognizant of such number and the plaintiff's business, that the telephone communications by such telephone were a valuable asset to plaintiff's business, and that the telephone company and another person had conspired to destroy plaintiff's business by the misuse and falsification of the telephone number, so that when plaintiff's number was called, the telephone company would give the number of the other person's firm engaged in the same business. Thus, said the petition, plaintiff's trade was injured and destroyed, a large number of customers desiring to employ them were unable to do so, such diverted messages completely cutting off their place of business from their customers. Plaintiff's business was that of a livery. It was objected that this petition stated no cause of action, but the court held to the contrary. Moorse vs. Linneman, 136 S. W., 232.

Stopping Disturbances from Electric Light Station.

Will you inform us of decisions by courts in cases where electric light companies' circuits have so disturbed telephone exchange circuits as to render them useless?

Our case is this. The street lights here have been operated very quietly by connecting all the lamps up on one circuit in series until recently, when, by doubling up into two circuits and splitting the current, they have run two circuits from one dynamo in an unbalanced condition, making them very noisy and thus interfering with our service.

Can the electric light company be compelled to run its circuits in such a way as not to disturb us as formerly?

The electric light company can be enjoined from disturbing your exchange circuits. If it changes its method of operation, it must take steps to provide against injuring you. In other words, it must comply with the maxim of law that says: "So use your own property as not to interfere with the property of others." The following cases may be of assistance: Nebraska Telephone Co. v. York Lighting Co., 43 N. W. 126. Paris Electric Light & Railway Co. v. Southwestern Telegraph & Telephone Co., 5 Am. Elec. Cas. 262. Simmons v. Southern Gas, Electric Light & Power Co., 41 Southern 248; McMillan, on Telephone Law, Section 139.

Salve for the Sore.

Dr. M. St. Peter, of Dumont, La., is awarded damages of $1,000 against the Iowa Telephone Co. because an employe of the company kicked him out of a telephone booth and otherwise bruised him. The supreme court so held, and in so holding cut in half the verdict awarded Dr. St. Peter by the jury in the lower court. The high court says in its opinion that St. Peter is entitled to damages, but not $2,000. If he is willing to accept $1,000 as balm, then the judgment of the lower court will be affirmed. Dr. St. Peter's trouble came when he remonstrated with a telephone operator for not trying to secure telephone connection with a patient with whom he wished to talk.

Rates Depend on Character of Service.

A telephone company is not entitled to charge a telegraph company a greater rate for service than it charges other business houses for similar service, because the telegraph company derives a greater profit from the use of its telephone in the receipt and delivery of telegraph messages, since the rates chargeable by the telephone company depend on the character of its service rendered, and not on the value of the service to the customer. Postal Cable Teg. Co. vs. Cumberland Tel. & Telg. Co., 177 Fed., 726.

Jurisdiction of Mississippi Railroad Commission.

The supreme court of Mississippi has held that the specific statutes relating to the railroad commission conferred jurisdiction upon it as to the whole matter of regulating telephone rates, and provided ample remedies for violations of law to the exclusion of the general anti-trust laws. Cumberland Telephone & Telegraph Co. v. State, 54 Southern 446.

Setting Poles in Iowa Streets.

We have a corner pole between the curb and sidewalk which we wish to replace. The owner of the property refuses to let us set the new pole inside of the curbing. If set outside of curbing, it throws the lead about two and one-half feet out of line. Is there a law prohibiting us from setting this pole inside the curbing on this same street? We have been setting other poles and one of them is at the side of the driveway, and the party claims that she does not like the looks of the pole there and she will have it moved away from in front of her lot. Can she make us move the pole?

Can trees that are outside of a walk be trimmed without the owner's permission?

There is no law prohibiting you from placing this pole inside of the curbing and outside of the sidewalk. That spot is just as much part of the street as any other. Unless the pole which stands at the side of the driveway mentioned is an interference with the owner's right of ingress, egres, light and air, she cannot compel you to move it. McMillan on Telephone Law, Section 91.

Trees that stand outside of the sidewalk may be trimmed in a reasonable manner without the owner's permission. Meyer vs. Standard Telephone Co. (Iowa), 98 N. W., 300.

John T. Detchon Buys Attica Telephone Plant.

A deal has been closed whereby John T. Detchon, of New Richmond, Ind., buys and takes over the controlling interest and management of the Attica telephone system, including an interest in nine toll lines. The consideration paid was $25,000. Mr. Detchon is owner of exchanges at Greentown, Ind., Toledo, Ill., and Greenup, Ill. He has a well-equipped repair shop at New Richmond, employs an expert telephone electrician and buys his telephones and other apparatus in parts and assembles them in this shop.

The Attica telephone system has been in existence since 1895 and is now giving service to 624 subscribers. Robert L. Milford retains an interest in the plant.

American Institute of Electrical Engineers Annual Convention Program.

The annual convention of the American Institute of Electrical Engineers will be held in Chicago, Ill., June 26-30. The official headquarters will be at the Hotel Sherman, corner Clark and Randolph streets, where the technical sessions will also be held. The following program has been arranged:

MONDAY, JUNE 26, 9:00 P. M.

Reception and dance, grand ball room, Hotel Sherman.

TUESDAY, JUNE 27, POWER STATION SESSION, 10:00 A. M.

President's address, by Dugald C. Jackson; address by president-elect, Gano Dunn; "Development of the Modern Central Station," by C. P. Steinmetz; "Tests of Oil Circuit Breakers," by E. B. Merriam; "The Use of Reactance Coils in Large Central Station Systems," by R. F. Schuchardt and E. O. Schweitzer; visit to Western Electric and Commonwealth Edison companies' plants

ELECTRIC LIGHTING SESSION, 8:30 P. M.

"Depreciation as Related to Electrical Properties," by Henry Floy; "Important Features Entering into Making of Appraisals," by H. M. Byllesby.

WEDNESDAY, JUNE 28, RAILWAY SESSION, 10:00 A. M.

"Some Data from the Operation of the Electrified Portion of the West Jersey & Seashore Railroad," by B. F. Wood; "Analysis of Electrification," by W. S. Murray; "Induction Machines for Heavy Single-Phase Motor Service," by E. F. W. Alexanderson.

INDUSTRIAL POWER SESSION, 2:30 P. M.

"Automatic Motor Control for Direct-Current Motors," by Arthur G. Eastwood; "Limitations of Rheostat Control," by T. E. Barnum; "Control of High Speed Electric Elevators," by L. L. Tatum; "Electrically Driven Reversing Rolling Mills," by Wilfred Sykes; "Electric Vehicles," by P. D. Wagoner.

PARALLEL MEETING, TELEGRAPHY AND TELEPHONY SECTION, 2:30 P. M.

"Multiplex Telephony and Telegraphy by Means of Electric Waves Guided by Wires," by George O. Squier; "Telegraph Transmission," by F. F. Fowle; "Commercial Loading of Telephone Circuits in the Bell System," by B. Gherardi.

EVENING.

Boat excursion on Lake Michigan.

THURSDAY, JUNE 29, HIGH TENSION TRANSMISSION SESSION, 10:00 A. M.

"The Law of Corona and the Dielectric Strength of Air," by F. W. Peek, Jr.; "Dielectric Strength of Air 2," by J. B. Whitehead; "Transmission System of the Great Western Power Company, by J. P. Jollyman; "Transmission System of Southern Power Company," by W. S. Lee; "Transmission System of the Great Falls Power Company," by M. Hibgen; "Electric Line Oscillations," by G. Faccioli.

2:30 P. M.

Visit to Indiana Steel Company's plant, Gary, Indiana.

8:30 P. M.

(Under Auspices of Sections Committee.)

Conference of Institute Officers and Sections Delegates.

FRIDAY, JUNE 30 GENERAL SESSION 10:00 A. M.

"Economical Design of Direct-Current Electro-Magnets," by R. Wikander; "Electrolytic Corrosion in Reinforced Concrete," by C. E. Magnusson and G. H. Smith; "Wave Shape of Currents in an Individual Rotor Conductor," by H. Weichsel; "The Choice of Rotor Diameter and Performance of Polyphase Induction Motors," by Theordore Hoock; "The Application of Current Transformers in Three-Phase Circuits," by J. R. Craighead; "The Cost of Transformer Losses," by R. W. Atkinson and E. C Stone.

PARALLEL MEETING, HIGH-TENSION TRANSMISSION SESSION, 10:00 A. M.

"Solution to Problems in Sags and Spans," by W. L. R. Robertson; "Sag Calculations for Suspended Wires," by P. H. Thomas; "Mechanical and Electrical Characteristics of Transmission Lines," by Harold Pender and H. F. Thomson; "The High Efficiency Suspension Insulator," by A. O. Austin.

EDUCATIONAL SESSION, 2:30 P. M.

"Tentative Scheme of Organization and Administration of a State University," by Ralph D. Mershon.

Adjournment.

ENTERTAINMENT.

On Monday evening, June 26, there will be a reception and dance in the Grand Ball Room of the Hotel Sherman, to which all members and their guests are invided.

On Tuesday afternoon, June 27, visits will be made to the Western Electric and Commonwealth Edison companies' plants.

On Wednesday evening, June 28, there will be a boat excursion on Lake Michigan.

On Thursday, June 29, there will be a luncheon for the ladies at the South Shore Country Club.

On Thursday afternoon, June 29, a visit of inspection will be made to the Indiana Steel Company's plant at Gary, Indiana.

Arrangements have been made by the Convention Committee with a number of golf clubs in and around Chicago so that those desiring to play golf may have the privileges of the clubs during their stay in Chicago.

Additional entertainment for the ladies, including automobile trips, will be announced later.

TRANSPORTATION.

It has not been possible to obtain special transportation rates for this convention. Members should therefore consult their local agents regarding routes and rates. Parlor and sleeping car accommodations should be engaged in advance.

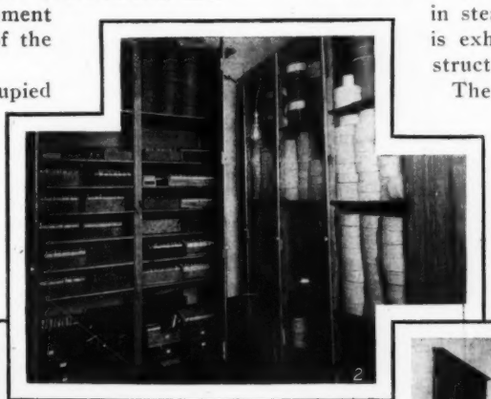
From Factory and Salesroom

A Company Specializing in Condenser Manufacture.

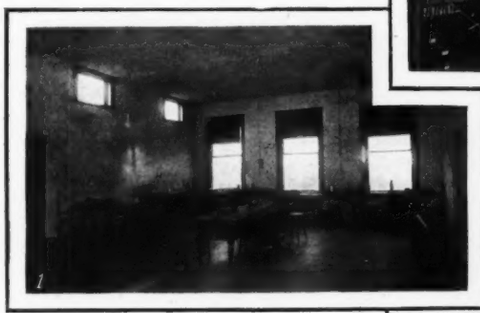
A. L. Peterson ,of Cresco, Ia., proprietor of the Electric Specialty Co., was the first manufacturer in the world to so appreciate the possibilities of the condenser as to pin his faith to its manufacture as an exclusive business. The results of his courage and foresight are shown in the rapid building up of a business which now supplies condensers to manufacturers and telephone operating companies, as well as many other users of condensers, throughout the United States and, in fact, over the entire world, as this company fills many foreign orders. Not only has the territory from which orders are obtained been expanding rapidly, but it has been naturally accompanied by an increase of business from all parts. This has warranted the erection of a new building, which has now been in operation for some months. It is of high grade fireproof construction, thoroughly supplied with all the equipment required for producing condensers of the highest merit.

Mr. A. L. Peterson.

The building, which was first occupied last October, has two floors 50 by 85 feet, and was designed especially for condenser manufacturing. It is entirely equipped with new machinery of the most modern type, including special designs which are the exclusive property of Mr. Peterson, including rolling machines, vacuum tanks, pumps, etc.

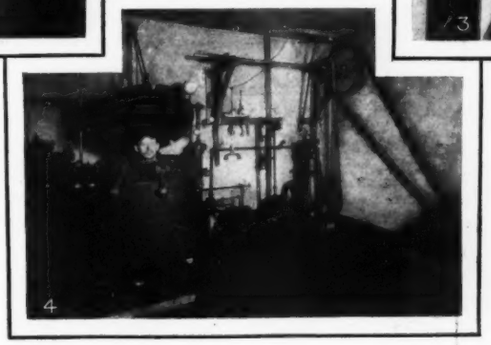


No. 2.—Condensers Ready for Vacuum Tanks.



No. 1.—Part of Main Work Room.

No. 4.—Corner of Impregnating Room.



No. 3.—View of Stock Room.

Moisture is the great enemy of success in the manufacture of condensers. The greatest care must be taken in keeping raw material to prevent it, so far as possible, from absorbing water, but even under the best conditions the paper will take up and hold an unbelievable quantity. The manufacturing process drives this all out.

The company uses the Mansbridge type of condenser invented by Mr. G. F. Mansbridge, of London. As is well known, this condenser is made of paper covered with a coating of tin instead of the former process of sandwiching tinfoil between layers of paper. It possesses the advantage of being self-sealing. That is, any puncture will be automatically sealed by the operating current passing through the condenser.

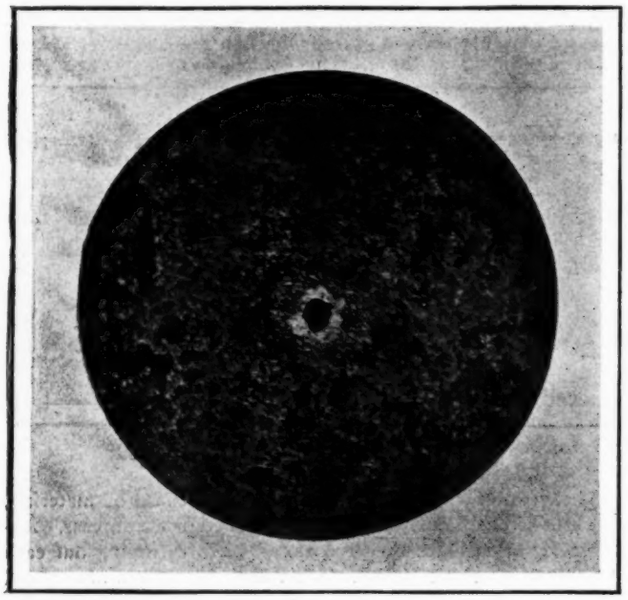
Electric Specialty Company's New Factory.

The greatest care is exercised in the purchase of materials, and this is one of the elements in Mr. Peterson's success. Another factor includes the precautions taken in drying out each condenser after it is rolled. The rolled condensers are packed in steam heated vacuum tanks and the air is exhausted by means of a specially constructed vacuum pump.

The condensers are impregnated with wax while under vacuum in the tank, so that when taken out there is no possible chance for moisture to reach the paper or conducting surfaces. This insures long life, uniformity of capacity and high insulation of the product. Upon removal from the vacuum tanks the condenser rolls are pressed and immediately put into tin cases, which are fitted with lids having special patented terminals. This process automatically seals the condenser and prevents the admission of water and air, and avoids all deteriorating influences. The admission of air and moisture for even a very short time would render a condenser unserviceable. By the use of this special patented terminal the condensers are so thoroughly sealed

that they can be thrown into a pail of water and left there indefinitely without suffering damage.

The self-sealing feature of the Mansbridge type of condenser is such an advantage that it has been found experimentally that it is possible to drive a nail through the condenser, and then by applying a generator current and sealing up the case,

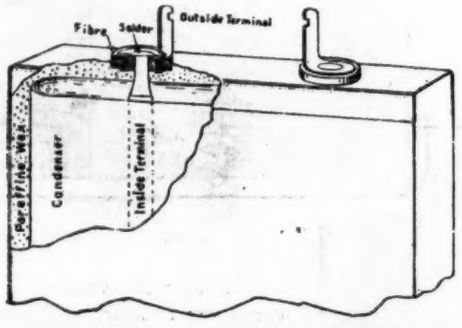


Micro-Photograph of a Treated Breakdown Point.

have it as efficient as before it received this rough treatment.

Every condenser is subjected to careful electrical tests for capacity and insulation, and also a break-down test, to insure its coming up to the severest requirements and having an ample factor of safety. In fact, several tests are applied to each condenser at various stages of its manufacture, and then a final test before shipment, so that the factory can be sure that no weakness will exist undiscovered in any of its product.

The condensers are made in all capacities required for telephone work, spark coil circuits, etc. They have been turned out in capacities as low as .002 m.f. and up to any required capacity. Wireless telegraph and telephone outfits, electric sign circuits, and many other electrical devices now in opera-



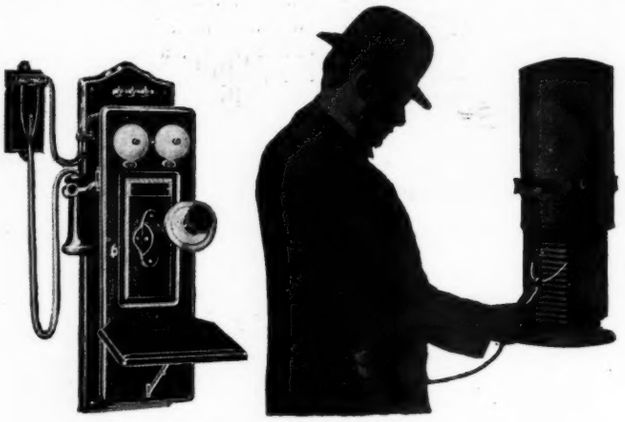
Terminal Construction, Cresco Condenser.

tion throughout the world are using Cresco condensers, and their operators express the same satisfaction felt by telephone men.

Cresco ring-three condensers have probably done more than any other single factor in the solution of the severest problem of rural telephone service, viz., the "rubbering nuisance." With a Cresco condenser cut in series with the receiver it is impossible for an interloper to prevent "Central" from ringing the called party again, or prevent anybody else on his line from calling "Central." He will be able to hear what is going on after conversation starts, but connot prevent it from starting. In a line not equipped with these condensers ringing current is shunted through the induction coil of the interloper's telephone, instead of going through the bells or drop where it belongs, and as soon as he takes his receiver off the hook the proper use of the line is at an end. The condensers correct all this.

A recently developed specialty manufactured by the company is the Addie fuse tester, which is a great help in maintenance work. A troubleman can test a whole bank of fuses in a moment, and it is so easy that he will never neglect to go over a can and see that everything is perfect before he leaves it. This is the kind of preventive maintenance which is a real saver of money.

The fact that Mr. Peterson specializes in condenser manufacture, and has a force of men trained to this work and



Cresco Condenser Installed—Addie Fuse Tester.

practically this alone gives him an opportunity to assure to his customers the fullest advantage from his equipment. The success of the business is in itself a proof that right business methods have been developed and applied. In addition to this, Mr. Peterson is personally well known in the telephone field, and is a man upon whom all his acquaintances are glad to bestow the heartiest endorsement.

"For the Man Who Has to Be Everywhere at Once."

The Stromberg-Carlson Telephone Manufacturing Co., Rochester, N. Y., is sending out folders under this significant caption, calling attention to its Mine-a-Phone and mine systems. The Mine-a-Phone is made in various types, the No. 890 and No. 962 being designed especially for underground and outdoor use. They consist of an iron-clad, water, dust and acid proof instrument. Other types are built for use in stables and other buildings above ground in the mining districts, and a two-piece desk set designed for use on the manager's or superintendent's desk. By the use of a proper telephone system the entire mining district is placed in direct communication with the superintendent's office, and with every other department both above and under ground, and is, therefore, one of the essential installments of a mine. Telephone companies operating in mining districts should make it a part of their work to go after such business, and they will do well to investigate the Stromberg-Carlson system as described in Circular No. 252.

American Steel & Wire Closes $100,000 Order.

The American Steel & Wire Co. recently closed a contract with the Inter-State Telephone & Telegraph Co., of Aurora, for 4,300 miles of copper wire. This wire is to be used in building the connecting lines for Independent long distance service into Chicago.

National Carbon Company's Calendar.

The National Carbon Co., of Cleveland, is distributing a handsome and handy little calendar done on celuloid. The

A Handsome Bit of Advertising Matter.

accompanying illustration affords a view of a portion of it. The company is mailing these calendars to interested inquirers.

A Novel Method of Cleaning Switchboards.

For years telephone companies have struggled with the problem of cleaning switchboards in the most effective and simple manner, and much time and thought have been expended on the question. It has been held that the vacuum cleaners now in general commercial use might be adapted to meet the special necessities of the telephone business, and this has now been done by the United Electric Co., of Canton, Ohio.

This company manufactures, under the trade name "Tuco," a system employing both suction and expulsion of air, which has admirably met the demand for a device to clean homes, churches, public buildings, schools, etc. It has now made certain changes in the models, devising also special rubber tools for the work, and has, it is said, adapted the machines perfectly for the cleaning of switchboards. The new models have been thoroughly tested and the manufacturers now declare them to be practically perfect.

The company has placed two styles of machines on the market for this particular work. One is operated by a 1½ h. p. motor running at a high velocity, and moving 240 cubic feet of free air per minute. This is to be used by one man. The other is equipped with a 3 h. p. motor, runs at a still higher velocity, moves 400 cubic feet of air per minute, and is operated by two men. A feature of these machines is that they can be utilized, not only for freeing the switchboards from dust, but also for cleaning floors, walls, ceilings, carpets, rugs, furniture, etc.; in fact, they are general purpose cleaners, as well as specially equipped for telephone work. All the dirt and dust are carried to the machine, and, it is claimed, the foul air in the rooms passes through the exhaust to the chimney flue.

It will certainly be of interest to every telephone manager to investigate this system. Full particulars will be given by the United Electric Co., Canton, Ohio, upon application.

The Avery-Loeb Electric Co. has succeeded to the electrical supplies and construction business of the Ross-Hull Electric Co., 114-116 North Third street, Columbus, Ohio. Oscar Avery is president of the new company.

A New Solder in Paste Form.

Do you remember, when you were a youngster at home, watching the plumber, tinsmith or electrician heating his soldering iron in a portable furnace and mending the leaks in the pipes, wires or kitchen utensils by melting his solder through contact with the hot iron and soldering stick? And do you recall how he poured on a little acid to form a flux and kept on heating his iron and repeating the process?

You probably observed him with a great deal of interest and curiosity and thought his work picturesque and mysterious; but it was mighty troublesome and a precious waste of time, labor and materials to the workman. At that time such laborious methods were necessary in order to solder efficiently.

Recently a new kind of solder has been placed on the market. It is in the form of a paste in a collapsible tube, put up just like the familiar tube of tooth paste, and all that is necessary for its effective use is to scrape off the surface of the part a little with a knife, squeeze some of the soldering paste on and apply a match, candle or torch. When the paste becomes hot it fuses and solders in the same manner as the old style soldering stick.

The name of this new device is Solderall, and it is being marketed by the H. W. Johns-Manville Co., through its branch houses in various cities throughout the country. While this article has been in use only a short time it is said to have met with practically universal approval by the trade and the public. Its convenience, cleanliness, economy and many other advantages have naturally made a wide appeal to householders as well as to plumbers, tinsmiths, electricians, hardware and supply stores and others.

Phoney Bill on His Monthly Trip to the Trade.

"Phoney Bill" says: "Gee! That sun is gettin' higher and stronger every day!" And he's looking at the Independent insignia. This representative of the Stromberg-Carlson Telephone Mfg. Co. of Rochester, N. Y., carries

Phoney Bill Always an Optimist.

some good lessons with him on his trips each month, and this is one of his good ones—Independence and Liberty. Telephone men should get this blotter regularly.

Telephones and the Interstate Commerce Commission.

The following statement from The Corporation Trust Co., Washington, D. C., throws some light on the question of the extent to which the Interstate Commerce Commission intends to take jurisdiction over telephone companies throughout the country.

Telephone companies, whose lines are all within the limit of a single state, territory or district of the United States, and which have no connection whatever with lines outside of the state, do not come within the jurisdiction of the Interstate Commerce Commission, but are subject solely to such requirements as may be imposed by the laws of the state in which they are doing business. Such companies are, of course, comparatively few in number. However, if such a company as above described transmits a message over its line to some other point within the state and there connects with an interstate line under an arrangement for transmission outside of the state, it would then be considered to be engaged in interstate commerce and subject to the Interstate Commerce law.

Furthermore, if two or more lines are connected so that a person within one state talks with a person at a point outside of such state, or so that a message is transmitted directly from a point within the state to a point without the state, the transmission of messages in this manner constitutes interstate commerce and brings all of the participating lines within the jurisdiction of the Interstate Commerce Commission.

In short, any telephone company from whose line a subscriber can talk to a person outside of the state, territory or district in which he may be, is engaged in interstate commerce, whether or not the company's lines actually extend outside of such state. So long as it is possible to make the connection through the exchange of another company whose lines so extend outside of the state, either directly or through the medium of one or more local companies, such companies are adjudged by the Interstate Commerce Commission to be under its jurisdiction.

It follows that these telephone companies must conform to the provisions of the Interstate Commerce law forbidding any undue or unreasonable preference or advantage, by rebates or otherwise, or any undue or unreasonable prejudice or disadvantage in any respect whatsoever. They are also required to make their rates and charges for the transmission of interstate messages reasonable and just and may lawfully issue franks covering free interstate service only to the same extent and subject to the same limitations as railroads and other common carriers doing an interstate business.

As of equal, if not more, importance to the various companies, it should be noted that such companies are subject to the orders of the Interstate Commerce Commission respecting the keeping of uniform accounts and memoranda and of making reports to the Commission. Just how far this requirement will be enforced at the present time is not certain, but there seems to be no doubt that the Commission has the power at any time to require all telephone companies engaged in interstate commerce to keep its accounts in such manner as the Commission may prescribe and to make such reports as it may from time to time call for.

The authority for the above statements is based upon a ruling of the Interstate Commerce Commission, being No. 305 in the Conference Rulings Bulletin No. 5, issued April 1, this year. The ruling is of particular interest on account of the decision in the case of Wm. D. Shoemaker against the Chesapeake & Potomac Telephone Co., handed down by the Interstate Commerce Commission a short time ago, referred to in our issue of May 27, in which the Commission held that no telephone company over which it may have jurisdiction can lawfully give the same service to one subscriber at a lower rate than to another, no matter when the contract with either subscriber may have been made. In view of the general practice of telephone companies throughout the country to permit old subscribers to renew their contracts at the same rate from year to year notwithstanding the enlargement of the service or the increase of facilities, while at the same time new subscribers are charged a higher rate, it might be in order to point out that on the demand of any subscriber paying a higher rate than another for the same service, no matter how just such higher rate may be, the telephone company can be compelled either to reduce or increase its charges to a uniform rate to all subscribers receiving the same sort of service.

The telephone companies, of course, will be compelled to increase the rates of old subscribers, and, in the words of the Interstate Commerce Commission, "those principles when applied throughout the country, as necessarily they must be, may result in a more or less substantial addition to the revenues of other telephone companies than have been dealing with their old subscribers in the same way."

This decision is the most important one relating to telephone companies handed down since Congress undertook "to regulate the rates and practices of interstate telephone companies" by the Act of June 18, 1910, which extended the jurisdiction of the Interstate Commerce Commission to such telegraph, telephone and cable companies, whether wire or wireless.

Independent telephone companies have not generally, heretofore, taken steps to comply with this law. It seems to be a matter of but reasonable precaution that all telephone companies should examine the law and the rulings of the Interstate Commerce Commission with the greatest care in order to see how far they are subject to the same. A great number of companies have neglected to designate an agent in the city of Washington upon whom service of all notices and processes may be made for and on their behalf, as provided in Section 6 of the Act of June 18, 1910. On failure to appoint an agent, notice or other process relating to the company is merely posted in the office of the Secretary of the Interstate Commerce Commission and may never reach the interested party at all.

The Corporation Trust Co. has offered to furnish copies of the above decision or other information regarding the law upon application to its office at 501 Colorado Building, Washington, D. C. This company furnishes the agent required by law for several hundred railroad and telephone companies and has been in the business of representing corporations in this and similar capacities for the past twenty years.

Fort Wayne Electric Works Merged.

Announcement is made that on June 1, the Fort Wayne Electric Works was merged with the General Electric Co., of Schenectady, N. Y., and that its business will be conducted under the name of the Fort Wayne Electric Works of General Electric Co.

It is stated that the same lines of apparatus and supplies will continue to be manufactured and sold under the immediate direction of the same individuals as heretofore, with F. S. Hunting, vice-president of the company, in responsible charge as general manager.

All correspondence should be sent to the Fort Wayne Electric Works at the same addresses as in the past. Bills and statements will be rendered from Fort Wayne, Ind., and all remittances should be made to Fort Wayne Electric Works, Fort Wayne, Ind. All outstanding contracts and other obligations of the Fort Wayne Electric Works will be carried out by the new organization.

Lindsley Brothers Co.—"Pole Cat" Poles.

The Lindsley Brothers Co., of Spokane, Wash., specialists in western cedar poles, has issued a handsome sixteen-page booklet describing its product. The pamphlet is printed on heavy coated stock, the covers being done in green and gold in a very striking manner. A number of beautiful halftone illustrations embellish the pages, a feature being a double-page halftone map of the United States, showing the producing district of the Lindsley Brothers Co., and illustrating the facility with which shipments are made to all parts of the country.

The booklet contains specifications, tables, suggestions, etc., of practical value to the buyer of poles, as well as a brief summary of the efforts of the Lindsley brothers as pioneers in opening up and developing the pole industry in the West. The trade name adopted by the Lindsley Brothers Co. for its product is "Pole Cat." In explanation it is stated that "the pole cat derived its name from the fact that in the olden days it was considered good policy to kill the little animal with a long pole—the longer, the better."

Copies of the booklet are being mailed from the Spokane office of the company, and extra copies may be had upon request.

Electrolytic Copper Price Reaches Twelve and a Half Cents

The United Metals Selling Co. is asking 12½ cents a pound for copper, and sales are large. The metal is firm at 12½ cents, and it is known that bids at that level for large blocks of the metal from speculative sources have been refused.

Indications are that there will be a heavy shrinkage in the copper surplus this month, as a large percentage of the copper purchased calls for delivery in June.

A prominent copper interest is of the opinion that electrolytic will touch 13 cents before many weeks have elapsed. In the London market this week copper reached the highest level recorded in several months.

The United Metals Selling Co. is about the only concern that has any great amount of copper available for sale, most of the selling agencies and producers having sold their possible output two months ahead. In the trade it is stated that the copper market is stronger than it has been at any time since the first of the year.

A New Adjustaphone Catalog.

The latest Adjustaphone catalog, which we have just received from the Chicago Writing Machine Co., is certainly a most informing little booklet on the subject of adjustable telephones. It gives a solution of the broken desk set problem that telephone men should learn.

The booklet deals with the annoyance and expense of damaged desk sets, breakage of receiver shells and mouthpieces, and of torn cords, and of the most practical way of preventing these occurrences. It also describes the Adjustaphone in detail.

The Adjustaphone booklet is a credit to those who edited and printed it. A copy will be sent to any telephone man and it is well worth a thorough reading.

The Bierce Cable Sleeve.

Reports of installations of the Bierce Cable Sleeve from telephone companies show a decided advantage over the old style cable sleeve, both in cost and service. Many have commented on the simplicity and ease of installation of the Bierce sleeve.

Mr. Einstein, president of the Specialty Device Co., of Cincinnati, which manufactures the Bierce sleeve, will be glad to give information to telephone men. This device is especially valuable to companies that cannot afford to hire a cable man.

PAGE & HILL CO., the well-known pole dealers, of Minneapolis, has recently put on a night shift in order that it may handle its growing business twenty-four hours in the day. The Minnesota Transfer yard of the company has also been equipped with a complete electric lighting system to further the same purpose. Business is reported excellent.

THE AMERICAN ELECTRIC FUSE CO., of Muskegon, Mich., has been placed in the hands of a receiver, and its president, Frank C. Jones, is under arrest charged with forgeries aggregating a large amount. There is said to be a possibility that the business may be reorganized.

N. C. COTABISH, manager of the National Carbon Co., Cleveland, O., is mayor of the west Cleveland suburb, in which the company's plant is located. Under his administration the addition has developed amazingly and bids fair to soon become a most important portion of the city. Mr. Cotabish also is interested extensively in real estate affairs in that vicinity.

JAMES S. BRAILEY, JR., and family, of Toledo, Ohio, sailed from New York this week to spend the summer in Europe. Since selling his Ohio telephone properties, Mr. Brailey has been devoting much of his time to a patented process for extracting resin from certain southern woods. His company already has two large plants at Gulfport, Miss., and Brunswick, Ga., and is erecting another in South Carolina.

A. P. BARTRAM, of the Alfred F. Moore Co., Philadelphia, recently made a business trip to Cleveland and Chicago, at both of which points there are important agencies.

W. A. McCOMBS, of the Pittsburgh Re-inforcing Pole Co., cut the Electric Light convention at New York short one day last week in order to get back to Pittsburgh for his first wedding anniversary.

"Borrowing Service" Discouraged by Directory Hints.

Mr. A. B. Reading, "owner, electrician and manager" of the A. B. Reading Telephone System, Flemington, N. J., has mailed TELEPHONY a copy of his directory, which shows so many subscribers as to suggest that if the company is really a one man proposition, as Mr. Reading's title suggests, he must have made practical application of all the principles of scientific management and efficiency engineering long before the magazines got wind of those subjects. Like many other directories, this one takes a rap at the borrowing nuisance.

Clock Cause of Trouble.

A peculiar trouble occurred in the Milwaukee North office district a few days ago, says the *Wisconsin Telephone News*. The chief operator reported to the wire chief that a certain line was permanent. The troubleman found the telephone on a table near the wall above which was hanging a cuckoo clock, the weights and chains hanging below. It was found that one of the chains had gotten under the receiver hook and at the proper time the hook and receiver were gently raised by the clock weight on the chain.

Necessity for Franchises in Texas.

The Texas Court of Civil Appeals has held that a franchise to operate a telephone exchange is not necessary, but that one can consider a party telephone line on any street subject to municipal regulation as to location of poles, height of wires and obstructions of streets. Bishop vs. Riddle, 113 S. W., 151.

Bell Companies Order 2,500 Automobiles.

Automobiles will soon be more extensively used for inspection purposes by officials and employes of the Bell telephone companies throughout the country. An order for 2,500 Ford cars has just been placed.

Publicity for Dayton in Home Telephone Directory.

The Home Telephone Co., Dayton, Ohio, has donated to the Chamber of Commerce the use of a page in its directory. The space will be used to "boost" for a greater city.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. KEMPSTER B. MILLER, of Chicago, who is visiting in California, recently addressed the members of the Throop Polytechnic Institute branch at Pasadena.

MR. J. M. GEORGE, who was connected with the Southern Bell Telephone Co., at Moultrie, Ga., has been made superintendent of the water and light department of the city of Moultrie, and severed his connections with the telephone company.

MR. R. M. DALZELL, who for the past three years has been connected with the National Telephone Corporation in Wheeling, W. Va., and served as secretary of the West Virginia Independent Telephone Association, has left the ranks of the telephone men to become identified with a foundry company in Steubenville, Ohio.

NEW COMPANIES.

BAKERSFIELD, CAL.—The Lost Hills Telegraph & Telephone Co. has been incorporated with a capital of $25,000. Richard Hastings, J. L. Evans and F. G. French are the incorporators.

BAKERSFIELD, CAL.—A new telephone company headed by J. W. Kelly is being organized to operate in and about Bakersfield, Cal. Franchises will be applied for.

PUEBLO, COLO.—The Pueblo Southeastern Telegraph and Telephone Co. has been incorporated by W. D. Garwood, B. H. Tallmadge and John H. Voorhees, Pueblo. Capital, $50,000.

DRY BRANCH, GA.—The Dry Branch Telephone Co. has been chartered at Macon. Capital $1,000. Incorporators: George W. Tharpe, Cecil Morgan and others.

HUDSON, ILL. (McLean Co.).—The Hudson Telephone Co., capital $2,000, has been chartered. Incorporators are, W. P. May, Maro B. Farwell and Floyd May. Attorney incorporating, Kinloch-Bloomington Telephone Co.

EVANSVILLE, IND.—Articles of incorporation have been filed for the Evansville Independent Telephone Co. The capital stock is $25,000, and the company is formed to operate in Vanderburg, Posey, Gibson, Pike, Dubois, Perry, Spencer and Warrick counties. The incorporators are E. B. Oslage, E. G. Lockyear, H. T. Cooper, M. B. Gatch and P. J. Fischer.

CLEGHORN, IA.—The Epworth Rural Telephone Co., Clerghorn, (capital stock, $600) has been incorporated by E. H. Mitchell, W. J. Bryant and Lee Walters.

CONWAY, IA.—R. O. Hanson is one of the incorporators of the Farmers' Telephone Co.

ELDORA, IA.—The Bear Creek Valley Telephone Co., Eldora, capital stock $540, has been incorporated by J. W. Miller, George Nigan and A. C. Brassfield.

GASTON, KY.—The Farmers' Mutual Telephone Co. was organized at Gaston with the following officers: W. B. Fallaw, president; J. H. Price, vice president; D. M. Craft, secretary, and W. D. Pound, treasurer. It is the intention of the company to erect a line from Gaston to Swansea and other points in the community.

STEPHEN (Marshall Co.), MINN.—The Stephen Farmers' Independent Telephone Co., authorized capital stock $3,000, has been incorporated by D. A. Green, president; J. R. Mack, secretary; F. J. Williams, J. H. Merdink, J. J. Sinclair, H. C. Schantzen, Chas. Diare, W. Walker, R. A. Whitney, Ole Torgerson, N. J. Underland, M. M. Hanson, E. L. Dykman, N. Torgerson, Olof Holdsten, Wm. Lorange and M. Peterson, all of Stephen.

HENNING, MINN.—The Henning-Vining Telephone Co., capital $4,000, has been incorporated by A. B. Trana, M. B. Lund, John Guisness and others.

INAVALI, NEB.—Papers of incorporation have been filed by the Farmers Creek Telephone Co. Capital stock $9,000, par value of shares $50. Incorporators are W. H. Moore, Ole Olson and E. H. Gilbert. Attorney, J. C. Saylor.

MT. HARMON, N. J. (Warren Co.)—The Patrons Telephone Co. has been incorporated. Capital $10,000. Incorporators: James I. Cook, Samuel Read and John G. Anderson.

PLAZA, N. D. (Mountrail Co.)—The Plaza Telephone Co. has been incorporated by James E. Norris, Ole Bangen, Wm. Power, Herbert Frink and Wm. Abelson. Capital, $50,000.

RHAME, N. D. (Bowman Co.)—Hiram H. Bay, Simon Brown, W. B. Shaw, J. Guy Sharp and Ole Paulson are the incorporators of the Rhame Light, Telephone & Water Co. Capital, $4,000.

WESTFIELD, N. C.—A charter has been granted to the Big Creek Telephone Co. of Westfield, Stokes county. Authorized capital stock, $10,000; par value of shares, $20. Among the incorporators are J. C. Frans, R. L. Nunn, J. H. Wright.

LOWERY, OKLA.—The Lowery Mutual Telephone Co., capital $500, has been incorporated by John H. Collins, W. B. Foreman and L. A. Moore.

PERRY, OKLA.—The 4 "D" Telephone Co. has been chartered. Incorporators are Aug. Kehres, Joe Janausek, Geo. Lumbes and Peter Gordon.

WOODFORD, OKLA.—The Lone Grove and Woodford Telephone Co. has been incorporated by C. E. Maddox, J. F. McCants, W. P. Smith, of Newport; J. R. Taliafeiro, of Lone Grove, and W. O. Jolley, of Woodford.

HERMISTON, ORE.—The Hermiston Farmers' Exchange Telephone Co. has been incorporated with W. H. Skinner as president and George A. Cressy as secretary. The other incorporators are Henry Sommers, P. P. Sullivan and Charles E. Percy. Capital stock, $10,000.

McMINNVILLE, ORE.—The McMinnville Mutual Telephone Co. has been incorporated. Capital stock $1,000.

WASHINGTON, PA.—I. A. Hetherington, U. G. Ames and Leo Wetzler, it is announced, will apply for a charter for the Bentleyville Telephone Co. of Bentleyville, Ellsworth and Monongahela.

WAUBAY, S. D. (Roberts Co.)—The Alto Farmers' Telephone Co., authorized capital stock, $24,975; par value of shares, $45.00; has been incorporated by Jno. Kranhold, Truman Mallery, W. H. Mallery, T. E. Mickelson.

MANCHESTER, TENN.—The Farmers Union Telephone Co. has been incorporated by T. G. Powell, A. M. Saunders and G. H. Banks. Capital, $5,000.

BUDA, TEXAS.—The Buda Telephone Co. has been organized with a capital of $5,000, for the purpose of purchasing the local telephone exchange, now owned and operated by G. T. Howe of this place. W. S. Birdwell, president; L. L. Carter, vice-president, and C. C. Huddleston, secretary-treasurer. The company proposes to make a number of improvements.

CHARLESTON, W. VA.—The East Side Telephone Co., of Fairmont, W. Va., has been chartered to construct and operate telephone lines in Marion and Monongalia counties, W. Va. Authorized capital, $10,000. Incorporators are A. A. Hamilton, D. S. Huffman, George M. Nuzum, Paul Hamilton, Aza Nuzum and James Zinn, all of Fairmont.

WALWORTH, WIS.—The Walworth Telephone Co. has been chartered. Capital, $25,000. Incorporators: E. A. Walter, C. M. Maxon and F. E. Lawson.

FINANCIAL.

SAN FRANCISCO, CAL.—The Direct Line Telephone Co., with main offices at 558 Market street, has levied its ninth assessment of $1.00 per share for the purpose of making extensions to its lines. The company operates in and about San Francisco with private lines, having no franchise from the city.

ABINGDON, ILL.—The Mutual Union Telephone Co. has increased its capital stock from $15,000 to $40,000. L. E. Cutler is president.

CREECH, KY.—The Upper Cumberland River Telephone Co. has increased its capital from $1,000 to $2,000 and will make improvements. C. W. Creech is manager.

BREMEN, KY.—The Bremen Telephone Co. has increased its capital stock to $8,000.

PORT JEFFERSON, N. Y.—The directors of the North Shore Telephone Co. voted to recommend to the stockholders an increase of capital stock to $25,000. It is desirable at present that many extensions be made, and the company also wishes to install a system in Smithtown.

CONNEAUT, OHIO.—The Conneaut Telephone Co. has filed an increase in capital stock of $50,000, making the present capital $100,000.

NEW WASHINGTON, OHIO.—New rates have been announced by the Independent Telephone Co. as follows: Two dollars per month for business and $1.25 per month for residence telephones. For four-party selective telephones the rates will be $1.00 per month.

WHEELING, W. VA.—The receivers of the National Telephone Co. have been authorized to issue receivers' certificates to the amount of $15,000. The money will be used to redeem an outstanding debt of $2,000, and to purchase material needed for extensions and additions to be made to the system.

EDGAR, WIS.—The Edgar Cassel-Emmet Telephone Co. of Edgar has filed an amendment increasing its capital stock from $1,500 to $4.000.

FRANCHISES.

CROSBY, MINN.—A telephone franchise, for a period of thirty-five years, has been granted to the Aitkin-Deerwood Telephone Co., of Aitken. A system will be installed. Herman Moork, of Aitken, is secretary and manager.

CONSTRUCTION.

BAKERSFIELD, CAL.—Twelve miles of telephone line are being built in the Kern national forest between the Rancheria and Davis camp, which will make the total length of the forestry service lines approximately 190 miles. The new line is being built to give the summer camp of Supervisor W. J. Rushing and his assistants direct communications with the ranger stations and the city.

LONG BEACH, CAL.—It is reported that the Long Beach Home Telephone & Telegraph Co. will expend close to $100,000 on its system this year. The system wil be practically entirely recabled, and new lines and equipment installed. Lack of facilities to take care of contracts on hand makes this move necessary.

MARIPOSA, CAL.—A. C. Smith and others have been granted permission to erect a telephone line on the Mariposa and Le Grand road.

SALINAS, CAL.—The work of constructing a forty-mile cross country telephone line from King City, Cal., to Slate's Hot Springs, sixty-five miles from Monterey, has begun. Dr. H. C. Murphy of Salinas, Cal., is managing the project.

ADAIR, ILL.—The Adair Telephone Co. voted to spend about $800 in repairing its lines. Mr. Walter Brown will do the work.

RULO, ILL.—The Rulo Independent Telephone Co., H. D. Kirk, manager, is rebuilding its system. Poles are being replaced with new ones and wire will be restrung.

SIOUX CENTER, IA.—The Mutual Telephone Co., G. De Soto, manager, is completing plans for the construction of a new office building of cement blocks. A new switchboard will also be installed and the system will be cabled throughout.

MARION, KANS.—The Marion Mutual Telephone Co. is contemplating building a line between Marion and Hillsboro in the near future.

HAZARD, KY.—The Perry County Telephone Co. has increased its capital stock from $5,000 to $8,000. New lines will be built and old ones overhauled. D. Y. Combs is manager.

BLEDSOE, KY.—J. W. Walker and others will soon build a telephone system in Bledsoe. Material will be needed.

PIKEVILLE, KY.—Thomas W. Kirk and others will built a telephone system in Pikeville, it is announced.

MUSKEGON, MICH.—The Citizens Telephone Co. is installing a new switchboard. The new equipment will increase the capacity of 1,850 to 2,050 telephones. Considerable conduit will be laid during the summer, and the toll lines will be overhauled.

KALISPELL, MONT.—Twenty miles of telephone line, connecting Whitefish with the forest station at Olney, is being constructed by a crew of men under Deputy Supervisor R. P. McLaughlin of the Blackfeet national forest. The line will be a part of a complete system to be eventually installed throughout the forest reservation.

WHITE SULPHUR SPRINGS, MONT.—E. T. and F. W. Barron are installing a telephone exchange. A company has been organized to be known as the White Sulphur Springs Telephone Co. They have orders for 75 telephones and connections with a number of farmer lines throughout the country. Toll line connections will be made to all the principal points in Montana via Harlowtown and Townsend.

AINSWORTH, NEB.—The Ainsworth Telephone Co. is building two lines into the rural district to take care of new subscribers.

FRANKLIN, N. H.—The Citizens' Telephone Co. is planning to enlarge its system and new lines are to be built to different communities not now covered by the company's line. A line is to be built to North Sanbornton, and other new lines will be constructed. General Manager W. B. Johnson of Laconia will supervise the work, taking the place of H. W. Muzzy, resigned.

CORNING, N. Y.—The Jasper & Canisteo Telephone Co. is making preparations to rebuild its line from Corning to Canisteo. New poles are being set. Frank Taft is one of the stockholders. The company will rewire its lines and make such other improvements as are necessary.

RENSSELAER, N. Y.—It is reported that the directors of the Rensselaer Home Telephone Co. contemplate the erection of a new home for the company. A suitable site is being looked for.

BLUE KNOB, PA.—The Poplar Run-Blue Knob telephone line is giving entire satisfaction. The line is sixteen miles in length and connects with Hollidaysburg. An additional line will be built in a few weeks connecting Portage to Blue Knob. R. B. Long, among the heaviest stockholders of the Poplar Run line, is promoter of the Blue Knob-Portage line.

PHILADELPHIA, PA.—The Keystone Telephone Co., it has been announced, has set aside $500,000 to be used in making extensions and improvements during the present year.

SUPERIOR, WIS.—The Trade River Telephone Co. is building a line from near the St. Croix, south of Trade river, to Superior.

ELECTIONS.

GRAVETTE, ARK.—At a recent meeting of the directors of the Mutual Telephone Co., W. H. Clark, of Decatur, was elected president to succeed Elijah Austin, resigned, and Glenn Jenkins, of Gravette, was elected business manager.

SANDWICH, ILLS.—The annual meeting of the stockholders of the Northern Illinois Telephone Co. was held recently. The following directors were elected: F. S. Mosher, J. N. Antoine, C. F. Sedgwick, E. A. Manchester, Wm. VonOhlen, George H. Hicks, Justin Latham, S. D. Newton and C. A. Harbaugh. The directors met immediately after the meeting adjourned and reelected the following officers: President, F. S. Mosher; vice-president, J. N. Antoine; secretary and manager, E. E. Wallace; treasurer, C. F. Sedgwick.

BENZIE, MICH.—The following officers have been elected for the Benzie County Telephone Co. for the ensuing year: President, George C. Woodard; vice-president, H. B. Woodard; secretary-treasurer, I. P. Jones; manager, Vernon Cummings.

FENELTON, PA.—At the annual meeting of the Fenelton Telephone Co. five directors were chosen as follows: W. J. Dunlap, Frank Waitman, Charles Young, William Pontius and L. G. McCorey.

PARIS, TEX.—Jos. Timmons of Paris was elected president and general manager of the Citizens Telephone Co. Other officers are: J. E. Seymour, Kenton, Ohio, secretary; F. D. Bain, Kenton, treasurer. Directors are H. P. Mayer and R. W. Worthan of Paris, John E. West of Kenton and the named officers.

CLARKSVILLE, TENN.—J. F. Sullivan of Erin has been elected general manager of the Clarksville Home Telephone Co. to succeed G. C. Young.

OCONTO, WIS.—The annual meeting of the Rural Telephone Co. was held recently. The following board of directors was elected for the ensuing year: President, Geo. Glynn; secretary and treasurer, H. L. Reeves. Mr. McAlowell, Mr. McTraverse, Donald McQueen, Harry Whitcomb, Ed. Couillard, Geo. Glynn, H. L. Reeves, Mr. McKeever.

MISCELLANEOUS.

JASPER, FLA.—Mr. J. L. Girk of Mattoon, Ill., has purchased the Jasper Telephone Exchange from C. E. Town. Mr. Kirk will move to Jasper.

BURLINGTON, IA.—Messrs. J. M. Crawford and F. W. Walter, of New London, have purchased the Denmark Independent Telephone Co. Mr. Crawford and Mr. Walter are both prominent business men of New London.

CUTLER, IND.—A deal was completed recently whereby the Bringhurst Co-operative Telephone Co. became the property of the Cutler Co-operative Telephone Co., the two systems being merged into one with the central exchange at Cutler.

McPHERSON, KAN.—The McPherson Telephone Co. is joining in the "city beautiful" movement and removing its overhead wires from the main thoroughfares. The poles are being placed in the alleys, and cable replaces open wires.

GLENDIVE, MONT.—The Montana Eastern Telephone Co., of Glendive, has completed a copper circuit to Billings. Previous to this connection could only be had with Culbertson, but now connection is made from Glendive to Poplar, Glasgow and Dodson. A copper line is now being constructed from Glasgow to Havre, and will be completed about July 1.

CHADRON, NEB.—A. E. Granthum of Lexington, E. M. Lefiany of Omaha and Eben D. Warner of North Platte have purchased the Chadron Telephone Co.'s system. They also purchased the Moyer system at Crawford.

ITHACA, N. Y.—The building in which the exchange of the Ithaca Telephone Co. was located was destroyed by fire.

ADA, OHIO.—The Ada Telephone Co., on April 1, advanced its monthly rates from $1.00 to $1.25. The farmers connected to the system and in New Stark and Orange townships have removed their telephones and are arranging to organize a Farmers' Mutual company. Officers have been elected as follows: President, Christian Hilty; vice-president, J. W. Shilling; secretary, Shell Dearth; treasurer, Noah O. Blossom.

ST. MARYS, OHIO.—The Home Telephone Co. is having plans drawn for a new two-story fireproof building, which it will occupy as an exchange.

SOUTH BEND, WASH.—It is reported that the farmers of Willapa Valley will establish a rural telephone line soon. The Willipa Harbor Telephone Co. proposes, in case the rural company materializes, to put in an exchange at Frances, an important mill and logging point at the head of the Valley.

TOPPENISH, WASH.—Since the new exchange has been erected by the Yakima Valley Telephone Co. an increase of 50 subscribers has been made. When this exchange was connected about two months ago there were only 62 subscribers in Toppenish. Today the new exchange list was announced with 110 subscribers.

WINNIPEG, MAN.—Advices from Regina state that fifty-three rural telephone companies have been incorporated with government assistance in the province since the first of the year, and twenty more applications are now receiving the attention of the department. The fifty-three new companies have 1,180 subscribers, and cover 1,185¾ miles.

UNDERGROUND.

DALTON, GA.—The Dalton Telephone Co. has announced that work toward cabling the wires in the business section of the city will be begun within a short time.

LACKAWANNA, N. Y.—The Federal Telephone & Telegraph Co. (Buffalo) and the Bell Telephone Co. have commenced removing overhead wires on prominent streets and will place them in conduit.

In the Rural Line Districts

A number of the members of the Lindsey Telephone Co. went to Marshfield last Tuesday to haul out a carload of cedar telephone poles which the company had sent for.—*Lincoln Letter Marshfield (Wis.) News.*

The telephone rates at Penn were considerably reduced.—*Bismarck (N. Dak.) Tribune.*

Our telephone service is getting somewhat on the bum. There are too many on each party line. Our first inclination is to accuse the central operator, but if one thinks of fifteen or twenty receivers going down when central is called, you have struck the source of the trouble. Something must soon be done, as the service is becoming no service at all.—*Adeline Letter Polo (Ill.) Press.*

When four linemen in the employ of the Central Union Telephone Co. attempted to place wires and install an instrument on North Adams street, Averyville, police swooped down upon them and arrested them on the charge of constructing a telephone system in the village of Averyville without a franchise.—*Springfield (Ill.) Journal.*

Guy McCurdy has again decided to cast his lot among us, having purchased the entire Lane telephone system rural lines and all belongings from his brother-in-law, A. G. Schuler. Guy will give the system a thorough repairing, putting in new telephones, etc. We are glad to know that he has decided "to come back." New telephones have been installed in the W. J. Davies and the W. C. Brodkorb homes this week.—*Lane (S. Dak.) News.*

We are glad to note that the Maxville Telephone Co. will soon have their lines in working order. The wire is about all up and they are installing the telephones. When completed this system will give Monday Creek township and the ancient and renowned village of Maxville good connection with the outside world. Mr. J. F. Miller is doing the line work for the new company. Mr. Miller is an expert at the business.—*Scotch Ridge Lorain (O.) Gazette.*

Roy Boon, who operates the Springhill switchboard, is building a new through line to Chillicothe.—*South Springhill News Chillicothe (Mo.) Tribune.*

A wad of gum, agitating the talk apparatus of the telephone girl, is not good for the service, according to the local telephone company manager. So among the new rules adopted for the Misses Central is one forbidding gum chewing on duty. Chewing gum must be stuck where it cannot clog up conversation or impede commerce. Candy, peanuts and even the prosaic hamburger sandwich are also barred from the front of the switchboard. The girl who toys with edibles or chewables must put a non-masticating substitute operator on the job.—*Linton Dispatch Indianapolis (Ind.) News.*

A new telephone line will soon be built through this section.—*Pleasant Plains News Batesville (Ark.) Guard.*

MISTER AND MISSES SEIZER, I HAVE THE HONOR OF PRESENTING THIS GIFT TO YOU IN BEHALF OF THE SUBSCRIBERS OF THE SURPRISE TELEPHONE COMPANY AS AN APPRECIATION OF YOUR GOOD AND FAITHFUL SERVICE AS OPERATORS. NOW GIVE THE TRIPLETS A RIDE
LONG LIVE THE YOUNG SEIZERS BLESS THEIR LITTLE GIZZARDS HURRAH!
IF EVER A YOUNG COUPEE DID DESERVE A NICE PRESENT ITS THEM
GEE WHIZ! WHAT DOES ALL THIS MEAN?
WELL FOR THE LAND SAKE!
?
?
PAREGORIC
Brandenburg.

The patrons of the Surprise telephone line west and north of Bellwood on Saturday last presented Mr. and Mrs. F. Seizer a beautiful baby carriage as a token of reward for their faithfulness as operators. Truly, no operators were ever more deserving of a present, and the good people of Alexis never do things in a half-way manner.—*Alexis dispatch in Kanola (Miss.,) News.*